THE CAVALRY JOURNAL

VOL. XXXX JANUARY, 1931 No. 162

Cavalry Packs and Marches

By Colonel Albert E. Phillips, Cavalry

Colonel Phillips has invented and developed the Phillips pack saddle which is now an important part of the equipment of every cavalry troop. The following article therefore presents information and instruction on the handling of packs in the Cavalry from the highest authority on the subject. It merits the careful study of every cavalryman.—EDITOR.

"WITHOUT its packs Cavalry would be reduced to approximately the power it had at the end of the Civil War and would be out of place in modern combat," says Col. Van Voorhis in the October, 1930, CAVALRY JOURNAL. Every cavalryman will agree with this statement. All realize that fire support is now a necessity for all maneuver elements, be they Infantry or Cavalry.

Up to the World War, Infantry (as well as Cavalry) was primarily a maneuver element with rifle fire power and a small amount of machine gun fire. Each year since finds the Infantry adding to its fire power. Cavalry likewise has added strictly fire elements of machine rifle, machine gun, one pounders, etc., until today approximately one-half of its enlisted regimental *combat* personnel is assigned to the fire elements. These fire elements consist of both horse and motor units. Sixteen percent of all horses (111) in the present peace strength Cavalry regiment, exclusive of officers' horses, and forty percent of the men are on duty with packs. The packs include radio, pioneer, demolition and the troop cooking, ration and picket line packs, in addition to the packs of the fire elements. The percentage of pack horses and men on duty with packs will be greater when the peace regiment is in the field. The necessity for thorough training in pack saddlery is obvious.

Importance of Training

Even with packs as part of its equipment, Cavalry may again be "without its packs," and thus be reduced to its former status, thru lack of personnel trained in the handling of pack saddlery and the marching of Cavalry with its packs. This very thing happened to all the Cavalry regiments but one during the Pershing Expedition in Mexico in 1916—they lost their pack units and their auxiliary fire power. True, the pack equipment of those regiments consisted of aparejos; but the one unit that did remain with its regiment and marched many hundreds of miles farther also had this same type of equipment. Training in the handling and fitting of pack saddlery and the marching of Cavalry pack elements enabled this unit to remain with its regiment.

Pack transportation at Cavalry gaits is a problem quite different from that of pack transport at the amble and walk. Rates of march in a Cavalry column, with its halts, further complicates the problem. And when we are told that "unremitting care and closest supervision are necessary to maintain pack transport in a high state of efficiency, without which, continuous operation is impossible"—and this refers to pack trains —we may appreciate the necessity for training personnel to handle Cavalry combat pack units, from the fitting of saddlery to the marching of Cavalry with its packs. That the importance of training in this subject is now recognized is indicated by steps being taken by the Chief of Cavalry.

This article, therefore, will briefly discuss and emphasize, basic principles and measures to achieve desired results with the Phillips pack saddlery, Cavalry type, pending the publication of training regulations.

The Phillips Pack Saddlery

The development of the Phillips pack saddlery and the more logical positioning of the many new pack loads has simplified the problem from the equipment standpoint. But this very simplification of equipment has caused organizations and individuals to neglect the study of saddle fitting and pad adjustment. Troops have gone and still go on practice marches without their pack saddles, either shipping them or carrying the pack saddles and loads in the troop wagons, thus passing up the opportunity for gaining experience. Most organizations do not have any trouble with packs —in fact those that do are few indeed—but some trouble will occur on extended field service from causes beyond the control of troop commanders, such as changes in conformation of animals from fatigue and lack of supplies, from the gaits and rates of march of Cavalry columns, with the halts, hours under load and lack of time properly to supervise adjustment of equipment.

Causes of Injuries

Practically all Cavalry horses lose weight in the field, especially a loss of surplus fat on each side of the withers. This natural change in conformation usually necessitates adjustment of the pack saddle pads—to build up the front of the saddle to its former position. Extended field service will frequently cause a change in the entire saddle position of an animal's back and

the weight and pounding of the pack load will occasionally work down somewhat the "saddle position" of the pack saddle. These changes then require a building up of the "saddle position" of the saddle.

Causes of injuries within the control of troop commanders are as follows:

1. First and most important of all the assignment of horses to carry packs. In nearly every troop of Cavalry there are the requisite number of horses that are *undesirable* for riding. Let it not be understood that "undesirable" here means "unsuitable." Broad-ribbed artillery type horses, single footers, pacers and others of undesirable gaits, buckers, and outlaws of other types which no soldier likes to ride are usually assigned to packs, though many are unsuitable for the purpose. In inspections of Cavalry commands the writer has found but one officer who stated that he selected his pack animals first and required his soldiers to ride the other horses. All the animals of this organization were in splendid condition.

2. Poorly mated teams of riding and pack animals with no team training. The importance of mated teams and team training in most cases has been entirely overlooked or not understood. There is also a difference between leading a pack animal and "driving" it. The artilleryman drives his teams.

3. Faulty saddling, a primary cause of injuries, includes the whole category of saddle fitting, cinching, etc. It will be said that all cavalry officers know the principles of saddling. Inspections show that many organizations do not apply them.

4. Hanger loads, properly positioned at the Arsenal, but the required balance not maintained. Improvised hanger loads not properly positioned—and invariably they are not. Saddles allowed to ride to a side for the full time between halts, instead of correcting the position of the saddle at once. A few minutes of this may mean an injury that would take over a week to heal.

5. Lack of instruction in the adjustment of saddles and the proper care of pack saddlery and pack horses in the field; these are all duties of troop commanders.

Other causes of injuries chargeable as a rule both to troop commanders and to higher commanders are:

1. Higher commanders unaccustomed to marching Cavalry with its pack units. In some cases these commanders base their marches entirely on the riding elements and leave the pack elements to get along as best they may; yet it is well known that the eight mile trot is based on that of the slower horses.

2. Over extended gaits of riding horses cause many pack animals to take the next higher gait; loads not removed during the longer halts; men not given sufficient time at the shorter halts to attend to their own personal needs and the needs of both riding and pack horses—in which cases the pack horses are usually neglected. Long hours under saddle and load at slow rates of march and occasionally at excessive rates.

Conditions of field service will seldom admit of ideal march conditions but marches constitute the greater part of the work of Cavalry in the field. Rapid maneuvering of Cavalry is an entirely different matter for the packs are so designed and loads are of such weight and so positioned as to admit of equal maneuverability. "Nuf said" to focus attention on marches; more will be said at the end of this paper.

Conformation of the Pack Horse

The subject was fully discussed in a previous issue of the CAVALRY JOURNAL (April, 1928) and will, therefore, be but briefly discussed in this article.

The first requisite of Cavalry pack transport is the selection of suitable horses both for the packs and for the riders who drive the pack horses. Mated teams, especially as to size, gaits and disposition are necessary.

Size is an important element of conformation. The tall horse is difficult to pack and unpack; it generally travels high both at the walk and the trot with considerable motion of the back at all gaits. A greater number of suitable horses are found among the horses of approximately 15½ hands. These horses, if short coupled, usually travel low to the ground and with less back motion than taller horses. In considering size avoid the very small, the tall and especially the excessively broad artillery types. No horse should be selected that is so broad as to push the sides of the pack saddle outward.

For strength, gaits and ease of fitting the backs should be short, straight, strong and well muscled with emphasis on straight backs. The barrel should be large, gradually increasing in size toward the flanks, strong and full through the waist. The chest should be of large girth; ribs well sprung, long, well separated and sloping backward. The withers should be of medium height, not too thin nor too thick, well developed and well muscled.

The neck shall be light, moderately long and tapering toward the head; crest firm and longer than the under side. This is the specification of the neck for Cavalry horses in A. R. 30-440 and not that for pack animals. The Cavalry pack horse is a typical Cavalry horse of certain desirable specifications. As he is driven as part of a team his neck must be of proper length.

The loins should be broad, straight, short and muscular.

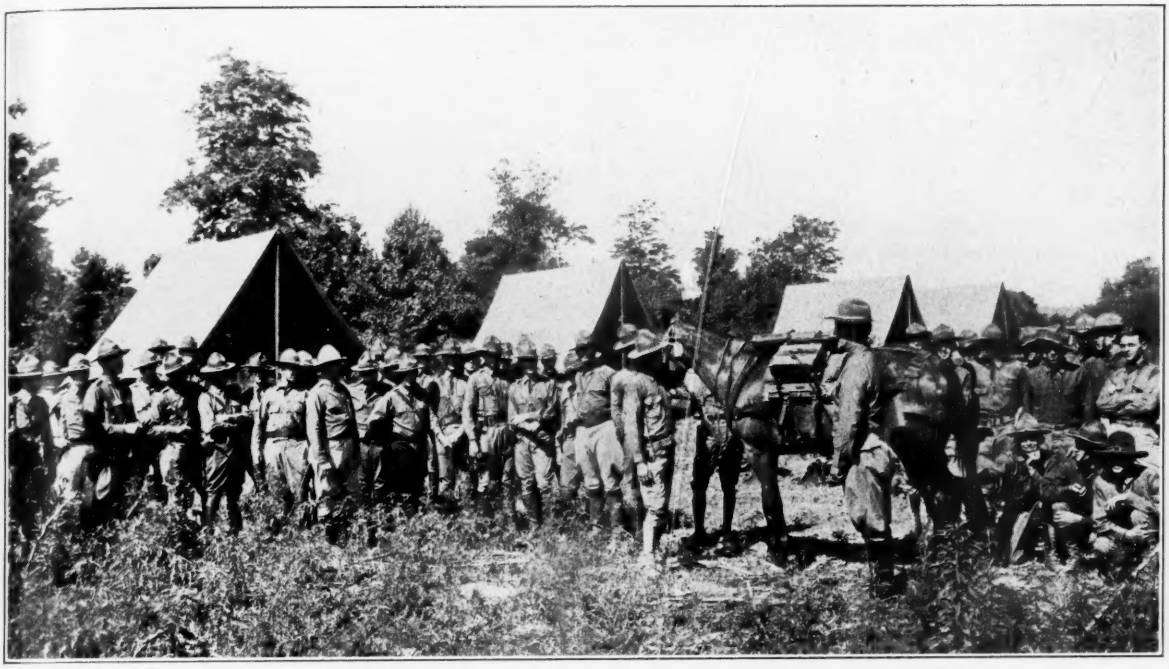
Hindquarters—wide, thick, not too long, well muscled and well directed.

Legs—straight, strong legs with heavy bone, pasterns short and strong and not too oblique.

Gaits and Disposition of the Pack Horse

Success in marching a Cavalry pack unit is largely based on the rates of march and the gaits of the pack animals. The Cavalry pack horse should walk, trot and gallop with free, bold and prompt action. All other gaits are undesirable. It should have but *little motion to the back at the walk* and should travel low to the ground at the trot.

Horses that walk with excessive transverse motion of the hindquarters or with considerable longitudinal or "camel like" movement of the back are unsuitable



Col. Phillips Demonstrating "The Phillips Pack" to Members of the 123rd Cavalry

for packs. The Cavalry pack horse should be a fairly good jumper.

As the pack-horse is part of a team it is evident that the ridden member of the team should be mated as to gaits and disposition. In forward movements at all gaits the pack horse should have its head in line with or slightly leading the head of the other horse. The pack horse that hangs back is unsuitable.

The pack horse should be gentle, with a kind disposition and be free of vicious habits. It normally carries an important combat load and time in action is too valuable to waste on a horse that bucks, bolts or is high strung and nervous. The pack horse should stand when being packed and unpacked. It is evident from the above that the pack team should receive team training.

Phillips Pack Saddles

The Phillips pack saddle was developed to meet the need for a pack saddle of simple but of scientific design. Two sizes of this saddle—the Cavalry and the Cargo—meet all normal army requirements. For expeditionary and other special purposes where native and smaller animals are found the Pony size is used. The saddles are all of the same type.

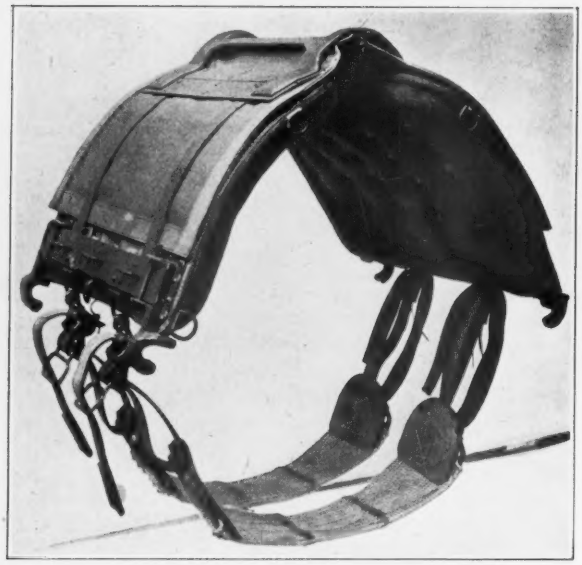
The Cavalry saddle is used for all Cavalry needs and for light loads of the different services, such as the infantry machine gun and communication loads, the field artillery 75 mm. communication loads, engineer and Signal Corps loads, etc. The Cargo saddle is the adopted saddle for Q. M. Pack Trains, for the infantry 37 mm. and howitzer loads; for the pack artillery regiments of 75 mm. pack howitzers and for engineer pack cargo. The Pony saddle was used on Philippine ponies and several hundred were shipped for expeditionary purposes in Nicaragua.

The Phillips pack saddle, Cavalry, was designed to fit all horses that measure up to or closely approach the specifications prescribed for Cavalry mounts (and for mules or similar type) without adjusting the pads. The saddle then, as issued, should fit approximately 95% of all Cavalry mounts. This article will discuss the Cavalry pack saddle only; it will give suggestions and practical hints not covered or not sufficiently stressed in the pamphlet on the saddle and furnish information on new equipment.

Recent Improvements

The adopted type of saddle was first issued in 1924. During the past year a saddle containing many improvements was issued. The pads of this saddle are reinforced internally with ribs of a nickel-chromium-aluminum alloy in place of steel. The top rib which forms a backing or bar for the saddle position is approximately six inches wide. There are three one inch horizontal ribs and one vertical rib near each of the front and rear edges, all riveted together. A slight change was made in the upper front of the pads on each side of the withers. New type foot-rests or pockets were placed on the lower corners of the pads to better facilitate the use of ropes when hitch loads are packed. When this type of load is packed it would be preferable to use this latest model saddle.

The Frame. The only change in the frame is in riveting the spring steel ribs to the side bars where three instead of four rivets are used. By leaving the lower rivets out greater flexibility is obtained. These ribs are made of specially tempered steel and shaped



Rear View of the Latest Model of the Phillips Saddle Cavalry Type

to a definite radius. Troops should not attempt to weld broken ribs nor should ordinary soft steel ribs be used for repairs. Ribs are issued as spare parts and they are easily replaced. It is preferable to use the saddle with broken ribs than to substitute soft steel ribs on an "off" radius. The saddle may also be used temporarily without ribs provided a piece of metal or wood is placed horizontally on the pad where the "distance pieces" or the lower parts of side hangers rest.

The hooks on the bottom bars of the frame are used when a rope hitched load is packed. The "hole" in the depression of each arch is used for bolting the light type of "load arch" to the frame. There are two types of standard "load arches," a light and a heavy type.

The Cinchas. A new adjustable type of mohair strand cinch is now being issued. The cinchas are all of 20 strands instead of 24 strands for both Cavalry and cargo saddles. The cargo cinchas are 20 inches long and the Cavalry type 24 inches. These lengths are the maximum required for garrison service; for the field the cinchas may be shortened two inches by merely placing the small D thru the bars of the larger D from outside to belly side and smoothing out the folds. For further shortening a piece of rope, wood, etc., may be placed thru the fold of the strands—See illustration.

The D's and safes are narrower than the McClellan Type and lie flat against the animal; the cinch is wider.

The Cinch Quick Release Device. A larger and stronger cinch quick release device operating on the same principle as the old type is now being issued. The strap of this device is of "harness" leather instead of the thinner "strap" leather used with the old type smaller devices. Notes on the use and care of these devices will be given under "Saddling."

The Breeching. The vertical "stay" piece of the breeching has been stiffened by the addition of a metal piece between the leather folds. The "croup piece" has been enlarged by a circular piece of leather under the 4-inch rings.

The Mohair Pad. The pads for the Cavalry saddle are 27 x 38 inches. As the saddle is 23 inches long this provides four inches of spare pad when saddling. There is sewed to the middle lower edges on each side a small canvas patch. These patches are for organization markings. By this method of marking the pad may be reversed end for end or turned completely over and the marking will always be visible.

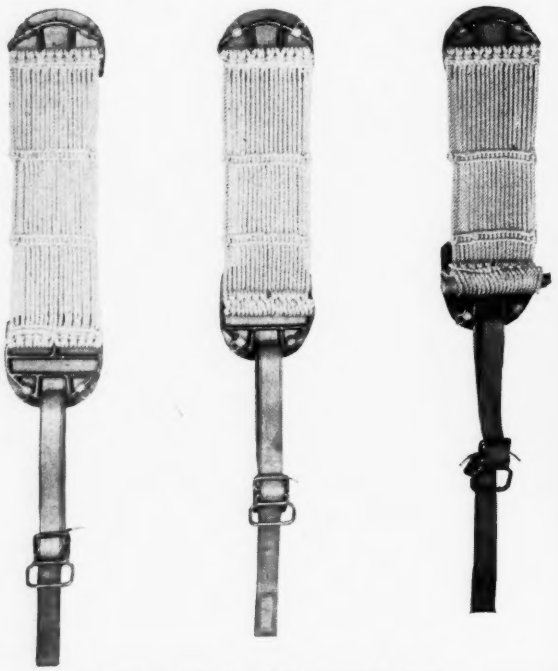
Tie thongs for securing the pads to the saddles are now placed in the pads at the depot. Some troops use a small leather piece sewed to the mohair pads for securing the thongs; these pieces should not be used as the pads cannot be reversed; further, the leather piece often gets under the saddle and causes rubs. The thong should be placed through the mohair pad using a lead pencil or similar article to open the weave. It should be placed slightly above the small D on the front edge of the saddle.

Fitting the Saddle

New saddles should receive a breaking in process before making any adjustments of the pads (See below) except for animals of abnormal size or conformation. For the Cavalry saddle, this breaking in is accomplished by using balanced side loads on daily marches of ten miles for approximately one week.

Saddling

Position of the saddle. Too much stress cannot be laid upon the proper position of the saddle. It almost seems unnecessary to stress this point yet inspections



New Adjustable Mohair Strand Cinch

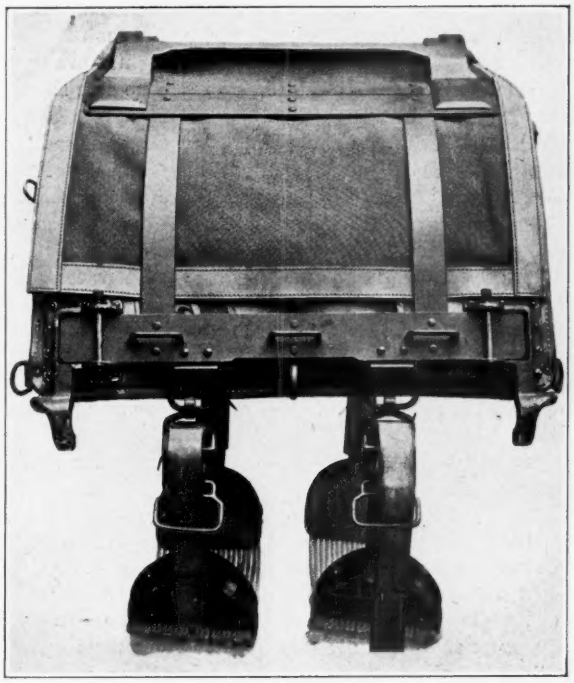
show that the majority of troops place the saddles too far forward. The forward edge of the saddle should be sufficiently in rear of the shoulder blades for these members to operate. Three or four inches is the correct measurement. The saddle should be viewed from the front and from the rear to see that it is centered and from the sides to see that the bottom bars are horizontal or inclined slightly downward and forward—*never downward toward the rear.*

Cinching. With the saddle in its proper position upon the animal the most important feature of saddling is correct cinch pressure. A pack saddle covers such a great amount of movable surface and parts that correct cinching is vital to success. There must be no excessive binding of the front cinch, which may injure the backs or sides, interfere with breathing or cause cinch galls. And the rear cinch *must not* be as tight as the front cinch, for the rear of the saddle covers the area of greatest motion,—the flexible short-ribbed region and the tender region over the kidneys. It must be remembered that the hind legs are the propelling members and the hind quarters not only oscillate from side to side in travel but also have a vertical motion which must not be bound by cinch pressure. There must be no interference with locomotion. The method of the double cinch admits of considerable and proper adjustment of longitudinal pressure.

The saddle is cinched principally with the front cinch. The rear cinch should be only sufficiently tight to hold the type of load carried. Minimum cinch pressure is always best. The fingers of a hand should pass easily between the cinchas and the animal's belly. The fingers should be inserted from "rear to front" so that when they are withdrawn the hair will not be ruffled.

Final adjustment of cinch pressure is made after the load is placed upon the saddle; not when first saddling. Correct cinch pressure cannot be determined when the animal is first saddled. Many pack animals "blow" against the cinchas and the weight of load settles the saddle.

Front View of Latest Model of the Phillips Pack Saddle Cavalry Type



Side View of the Latest Model of the Phillips Saddle Cavalry Type

Adjusting cinchas on the march. After the animal is on the road for a few miles its belly draws up and this, with the settling of the saddle due to the weight of the load, makes adjustment of cinchas at the first halt necessary. When not practicable to remove pack saddle loads at halts, great relief will be afforded the animal and injuries possibly prevented by releasing cinch pressure. The position of the saddles and the cinch pressure should be inspected at each halt. The cinching device affords a ready means for accurate and rapid adjustments.

The cinching device. This is a simple efficient device for the rapid and correct adjustment of cinch pressure; it eliminates the tying and untying of knots and is especially valuable on marches where time is so important. The normal method of using it is given in the pamphlet on the saddle and this is the method that should be used with Cavalry pack saddle. For the cargo saddle however, the method of operating the device is reversed. The strap of the device is attached to the cinch D of the saddle and the device hooks to the cinch. With this method, it is only necessary to pull upward on the cinch strap to tighten the cinch. Excessive pressure may be applied however, if one is not careful.

The Breeching. The breeching should be adjusted for slight play around the buttocks. The lower or "holding" straps that are attached to the bottom D

rings of the saddle regulate the action of the breeching. Therefore these lower straps should be tighter than the upper or "hold up" straps. A breeching not properly adjusted may cause a saddle injury. In no case should the breeching be too tight.

Breast collars. One of the primary causes of saddles being too far forward is snug-fitting breast collars. There is a tendency in the service to have snug-fitting collars at the walk, for neat appearance. A snug collar at the walk will be a tight collar at the gallop or at an extended trot. A tight breast collar pulls the saddle forward, causing the front of the saddle to move upward, interfering with the operation of the shoulder blades, throwing excessive weight on the kidneys and sometimes causing the breeching to bind. In practically all cases the saddle will ride better in its proper position without breast collars. The proper adjustment of the breast collar for the gallop gives a sloppy collar at the walk.

Mohair Pads. As all pads, blankets, etc., have a tendency to move rearward under the saddle it is advisable to place three inches of the pads forward of the saddle. The pads may be tied to the front edges of the saddles if desired. The pads should receive the same care as that prescribed for saddle blankets. They should be folded with the wet side in after unsaddling and not exposed to the sun to dry. The pads should occasionally be washed in cold water to free them of salt and dirt.

Condition Requiring Adjustment of Saddle Pads

No adjustment of saddle pads is required for pack animals of normal conformation. Adjustments, therefore, come under two general classifications:

First. Adjustments to *prevent* injuries. These include:

a. Adjustments for fitting animals of abnormal conformation. These adjustments usually require the removal of hair to reduce pressure in parts of the pads.

b. Adjustments for maintaining the fit or bearing surface of the pads for animals of normal conformation which have lost flesh in campaign. The adjustments require the addition of hair or other material for building up the pads.

Second: Adjustments to *relieve* injuries. These require reduction of pressure and friction from that part of the pads covering the injury, usually by the removal of hair, and occasionally the addition of hair to other parts of the pads.

How to Adjust the Pads

The pads are adjusted by first detaching them from the frame. The pads are held to the frame at the top by two bronze staples that are engaged to two single hooks of the frame and, at the bottom, by the bottom bar pockets. No tools are required for detaching and attaching the pads.

To detach a pad. Press downward upon the head of each bottom bar pocket pin, turning the pin to the left until the lug on the pin springs upward through the keyway of the pocket; remove the pin. When both pins are removed take hold of a cinch ring with one hand and, with the other hand near the edge of the pad, push the lower part of the pad from the frame. Swing the pad to the middle of the frame and remove it by lifting it off the staple hooks at the top of the frame.

NOTE: The pad can not be detached until it is swung to the middle of the frame.

To attach the pads. Turn the saddle frame on its back; put the canvas saddle cover in place, leaving room in the four openings of the cover for attaching the staples of the pads to the staple hooks of the frame. Attach a pad by holding it near a line through the middle of the saddle arches—away from the bottom bars of the frame—and engaging the staples to the hooks, lifting upward to secure them. Hold the pad engaged and bring it against the bottom bar of the frame.

NOTE: By holding the engaged pad against the bottom bar it cannot become detached. In case one man is attaching the pads, rest that side of the frame with the engaged pad on the ground. Repeat for the opposite pad. Hold the pads to the frame and turn the saddle "right side up" and straighten the canvas cover. The cover is easily straightened by swinging the pads toward the middle of the frame, then pulling the cover downward. Swing the pads back and engage them to the bottom bars of the frame. The bottom bars are pressed into the pockets of the pads by holding one hand on the foot of each pocket, in turn, and pushing the pad outward toward the bottom bar with the other hand. Insert the bottom bar pocket pins in the holes of the pockets and engage them by pressing down the heads and turning the lug on the pins one-quarter turn to the right, when the lugs should snap into place.

Adjustment of pads to prevent injuries. As the pads of the Phillips pack saddle are molded to form, no change of this form should be made unless absolutely necessary.

In fitting animals of abnormal conformation it is good practice first to place the saddle in position upon the animal without the blanket or mohair pad, and observe the fit from the front, sides, and rear.

The front of the saddle should fit smoothly against the animal with no compression of the withers. The sides of the saddle should not be pushed outward excessively. The rear of the saddle should follow its natural curved lines without pinching the animal. And there should be uniform bearing of the pads along the weight-bearing muscles of the back as viewed from the rear. If any of the above conditions are not found the pads should be adjusted.

The abnormal types of animals usually found, in so far as conformation of the body for packsaddles is concerned, are:

Withers—too thick, too flat, or too thin.

Back—too short, swayed, or roached.

Chest—broad-ribbed draft type.

Barrel—excessively large.

The excessively thin withered and the sway-back types require the addition of hair to build up the pads. The other abnormal types require removal of hair.

For the short-back type, it may be necessary to remove hair and pressure from the rear of the pad.

Adjustments for building up the pads for all normal animals that have lost flesh in campaign consists merely in replacing with hair the flesh lost. These adjustments should not be resorted to until necessary to prevent injuries. When made, however, the normal shape of the pads should gradually be restored as the animal gains in flesh.

In fitting the saddle, especially for abnormal types, there are two convenient methods for obtaining an accurate fit, each depending on whether hair should be added or removed; these methods are:

In cases requiring the addition of hair, thoroughly wet the saddle position (back and sides) of the animal, then carefully place the saddle in position without the mohair pad and cinch it tightly, leaving the saddle in place for a few minutes. When the saddle is removed the dry spots on the pads indicate the positions where hair should be added.

In cases requiring the removal of hair from the pads, wet the place on the animal where hair should be removed, then place the saddle, without mohair pad, in position and cinch tightly. The wet marking on the pads indicates the spots where hair should be removed.

The spots or region requiring adjustment should be marked with chalk or colored pencil. Colored grease, white zinc oxide or methylene blue may be used instead of water to give more distinct markings.

The amount of hair to be added or removed may conveniently be determined by holding the detached saddle pad in position upon the animal where the fit may be observed. But the pad must be held in the exact place where it will bear when it is attached to the frame.

After adjusting the pads attach them to the frame and check the accuracy of the adjustments by again saddling without the mohair pad and observe the fit of the saddle. In fitting the withers, space must be left for the mohair pad.

How to make the adjustments. Practically all adjustments are made through the handholes in the leather backs of the pads, thus conserving the original smooth contact surface. As the pads are formed and tied in a mold, it is important to untie only the minimum number of thongs.

Untie the thongs covering the markings and tie a loose knot near the ends. If thongs are removed it is necessary to use the awl to replace them. Remove the leather slip covering the handhole. If hair is to be added thru a handhole use the 12″ stuffing rod of the saddle kit for pushing the hair to place; if hair is to be removed, use the hair hook. Hair should be well loosened before stuffing and only small amounts put in at a time. It should be firmly compressed into place, being careful not to push the tool through the felt contact surface.

Adjustment of pads to relieve injuries. With properly positioned hanger loads there is but small chance for either the saddle or the load to be a primary cause of injury. Before adjusting the pads determine the cause of the injury and decide whether or not it may be corrected by other means.

Basically all packsaddle injuries may be relieved by reducing or removing pressure or friction from over the injured part; this may be accomplished by chambering or making a recess in that part of the pad immediately over the injury.

Many injuries are relieved by correcting a faulty position of the saddle; by readjusting the breeching or breast collar and by attention to cinch pressure and loads.

A minor bruise would not ordinarily require removal of hair from the pads, nor would removal of hair be necessary for a swelling that has subsided, unless the swelling was caused by a lump of hair in the pad. It is often possible to relieve pressure by tightening a thong instead of removing hair.

To chamber a pad. Detach the pad from the frame and loosen all thongs passing through the marked area so as to have a chamber of at least 1 inch greater radius than the marked area. Tie a loose knot in the end of the thongs. Pull the leather slip out of the handhole nearest the marked area. Use the hair hook of the tool kit and pull the required amount of hair, pulling small amounts each time from the back of the pad. Press in the chamber on the contact or felt side and tie the thongs. Rest the contact side of the thong on a rock or stick to secure a tight hold or have an assistant push the thongs inward with the handle of the hammer.

Check the accuracy of the work by holding the pad upon the animal in the exact position it would occupy, observe the chamber, and see that all pressure would be relieved when the pad is attached to the frame. Repeat this checking with the pad attached to the frame.

As soon as the injury is healed the normal shape of the pad should gradually be restored.

In restoring the normal shape of the pads or in building up pads in the field any soft material may be used if curled hair is not available. Pieces of gunny sacks, grass, hay, or paper may be used until curled hair can be obtained. The resiliency of curled-hair pads may be restored by pounding the pads with the clenched fist.

The methods for determining the parts of the pads from which hair should be removed; how to add and remove hair, checking the accuracy of the adjustment and tying thongs are described under "Adjustment to prevent injuries."

(To be continued in the February issue)

The Nicaragua Canal Survey

Lieutenant Colonel Dan I. Sultan, Corps of Engineers

Commanding U. S. Army Troops in Nicaragua and in Charge of the Nicaragua Canal Survey

FOR about 100 years following the voyages of Columbus to the Americas, early explorers sought a natural short water passage to the Far East. After all hope of finding a natural strait had been given up, attention was directed to the construction of a canal. England, France, Spain, Holland, and the

Lieutenant Colonel Dan I. Sultan

United States at various times took the lead in advancing the idea and promoting companies to secure concessions. Over a period of years, investigations into the practicability of such a project narrowed the usable sites to a choice between Panama and Nicaragua. Both routes were studied and reported upon numerous times and private corporations started work on each. In 1901 the report of the Walker Board (the Isthmian Canal Commission), appointed by the United States to study the subject of all interoceanic canal routes, chose Nicaragua rather than Panama as the location of any canal to be built by the United States. Its report was subsequently modified to favor the Panama route because the work already done by the French, and the accompanying equipment, supplies, surveys, concessions, and railway, were offered for sale at such a price that the estimated total cost of a canal at Panama was five and a half million dollars less than the cost of a canal at Nicaragua. The money saving argument was too potent to resist at the time the matter was decided. The 1926 traffic figures indicated that the great advantage of the Nicaragua route as compared with Panama was and is the fact that it would save one or two days time for about 80 per cent of the ships that use a canal.

Long before the Panama Canal had been put in operation it was recognized that at some future time the installations at Panama would be insufficient to care for the traffic that would develop. Whether the necessary increase in facilities would take the form of an enlargement of the Panama Canal or the construction of a second canal was left for decision when the need for it should appear. With an eye to eventualities, the United States in 1916 entered into a treaty with Nicaragua (the Bryan-Chamorro Treaty) which provided that in return for $3,000,000 the United States should have the exclusive rights to build a canal in Nicaragua.

Within the last few years it has become apparent that the time has arrived to decide what shall be the next step taken by the United States to provide passage through Central America for the world's ships. The estimated rate of the growth of traffic through Panama has been far exceeded. The Panama Canal was opened in 1914 but suffered at first from the effects of slides and the great war, so that the world's trade did not begin to flow through it on a large scale until about 1920. Traffic has now reached the amazing figure of 30,000,000 tons annually, variously estimated at from three-fourths to three-fifths of the present practical operating capacity of the canal. It is high

Diamond Drill in Operation at Machuca Damsite

time to consider what steps should be taken to provide additional canal facilities, because from ten to fifteen years will be required to survey, plan, and con-

struct the Nicaragua Canal or to enlarge the Panama Canal.

In 1929 Congress adopted a resolution providing for a new study of the Nicaragua Canal. The President of the United States decided to have the survey made by the Corps of Engineers, U. S. Army, and to use army personnel. Survey personnel arrived in Nicaragua in August and October of the same year. The troops employed are the Headquarters & Service

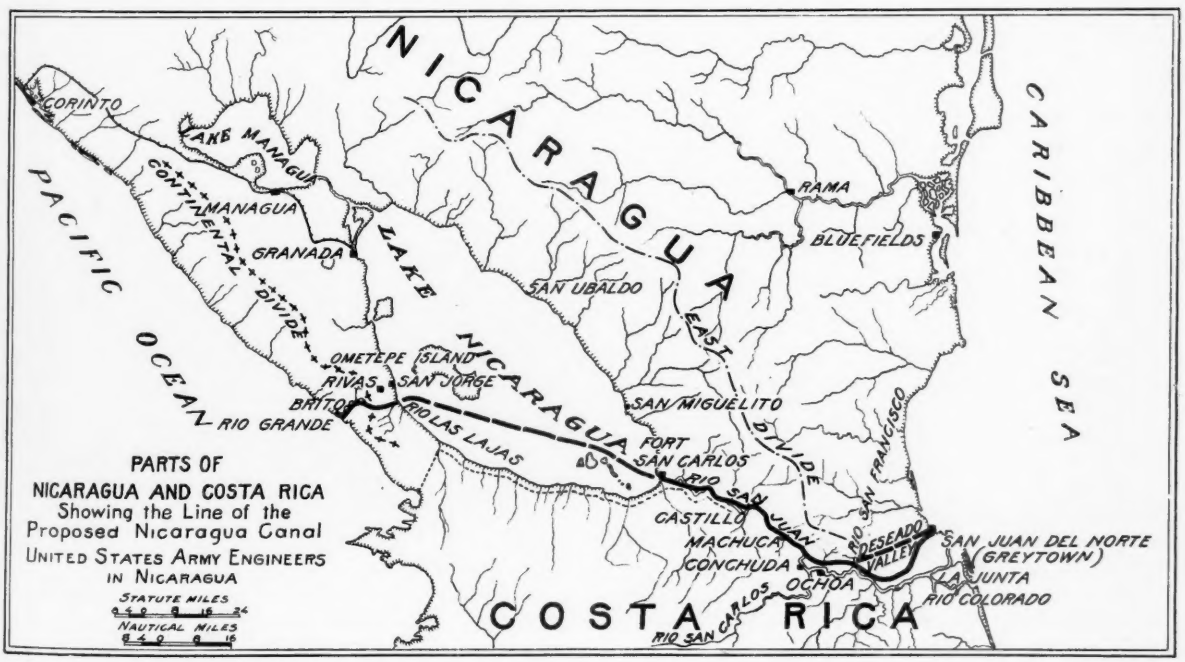
Gauging the San Juan River

Platoon, 29th Engineers; Company A, 1st Engineers; Company F, 11th Engineers; with medical, quartermaster, signal, and finance detachments.

Starting from Brito on the Pacific Ocean, the Nicaragua Canal will follow generally the Rio Grande to a low ridge (the west divided) and thence down the Las Lajas to its mouth on Lake Nicaragua a few miles south of San Jorge. In this, the Pacific section, the main problems to be studied are the layout and plans for the harber at Brito, and the location, design, and lifts of the locks. The canal as planned from old surveys is now inadequate. Larger ships and the greatly increased commerce that will use the canal require a larger and better harbor. Locks must be larger and will require more extensive rock foundations. The time of transit of ships must be reduced in every way consistent with economy in canal construction and with sound engineering. Time is of more importance than it was thirty years ago and each hour's delay caused to shipping today represents a large sum of money. The present problem in the Pacific section is therefore to straighten the canal and to determine the correct location and layout of the locks and terminal harbor. Large areas are being surveyed and much diamond drilling is in progress to determine the adequacy of foundations.

From the vicinity of the mouth of the Las Lajas the canal will cross Lake Nicaragua to Fort San Carlos. Locating the channel in the lake so as to provide safe navigation with minimum dredging and curvature, and designing the lake harbors are the main problems in this sector.

Below Fort San Carlos the canal will follow in general the San Juan River Valley to the vicinity of the main dam. The water level of the lake or reservoir behind the dam must be so regulated as to provide ample water at all times for lockage purposes. During the rainy season enough water must be stored to carry through the next dry season. Sites for such a dam exist between Ochoa and Machuca Rapids, both inclusive. The present problem is to determine the best site. It goes without saying that such a site must have suitable foundations for the huge dam structure that will be necessary. The spillway must be capable of discharging 100,000 second-feet. The lower down the San Juan Valley the dam is located the higher it must be. The nearer to the Carribean the dam is placed the longer the lake above it will be, and navigation in a deep lake is preferable to navigation in



narrow cuts. In general it may be said also that the farther down the valley the dam is placed or summit level is carried, the smaller will be the amount of excavation between the dam and Greytown. Defense plans require that the dam and the locks must not be in exposed locations. They cannot be too close to the sea. The location of this main dam is one of the big problems to be solved.

In the Carribean sector below the big dam there are many important problems that must be studied. It is perfectly feasible to build a canal following in general the north bank of the San Juan River to Greytown. Such a canal would have poor foundations for the extensive embankments that would be necessary. A so-called high-level line is coming in for special study. A canal on this line would leave the San Juan River near Conchuda, cross the basin of the San Francisco River at lake level to the East Divide, and thence follow the valley of the Deseado River to Greytown. A harbor at Greytown, which is common to both lines, is feasible and practicable from an engineering point of view, but it involves the solution of many delicate problems and will be expensive because of the enormous sand movements taking place along the coast.

There is an old saying to the effect that if you have

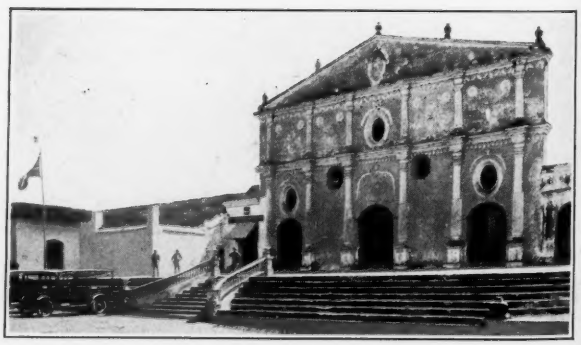
Main Street, Greytown

not seen Paris you have not been to France. It is equally true that if you have not penetrated the jungle of the San Juan River you do not know what real jungle looks like. Can you imagine a rainfall of about 300 inches a year? Perhaps not unless you have been to Greytown at the mouth of the San Juan River, for that is the wettest place in the Americas. In such a country tents are useless. Thatched native shacks are the only solution to a temporary housing problem. Have you ever tried to make a map in a continuous down pour, in a jungle so thick that you cannot see ten feet in any direction, where the foliage is so dense overhead that little light penetrates and a permanent gloom pervades? Have you ever tried to run a traverse across miles of swamp where at no place is the footing sufficiently secure to keep you from sinking to your waist, frequently your neck, and usually over your head? Imagine unnumbered mosquitoes, insects by the million, so varied as to size, shape, bite and method of locomotion that classification is impossible. Throw in some alligators, snakes, scorpions, vipers and poisonous

Surveying Under Difficulties in the San Juan River Swamp

small reptiles, not to mention the ticks, and you have a picture of the conditions under which Army personnel have been laboring in Nicaragua.

The headquarters of the survey is located at Granada, a quaint but comfortable place to live. Headquarters is housed in an old monastery that is rich in history, as it has played a part in the many revolutions of the country. It contains six patios with many wide corridors. More comfortable barracks or a more satisfactory layout for a headquarters could not be found. The base camps—Camp Hoover at Ochoa and Camp Hurley at Greytown—have been made as comfortable as conditions permit. Portable electric generators furnish lights, all walks and streets have duck-

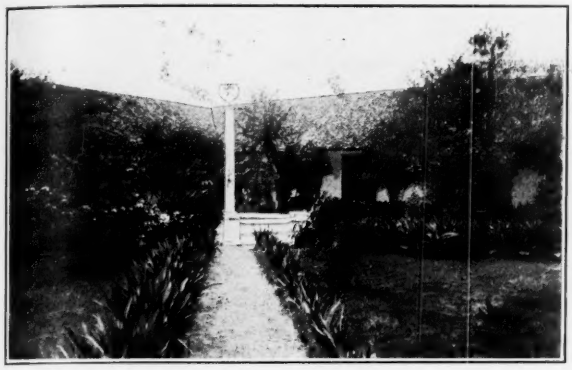


San Francisco Church and Monastery. Headquarters of the Survey at Granada

boards, and radio sets maintain communication with the Granada headquarters. Field hospitals are well equipped and are screened. Because of the meticulous observance of sanitary regulations by the troops, and

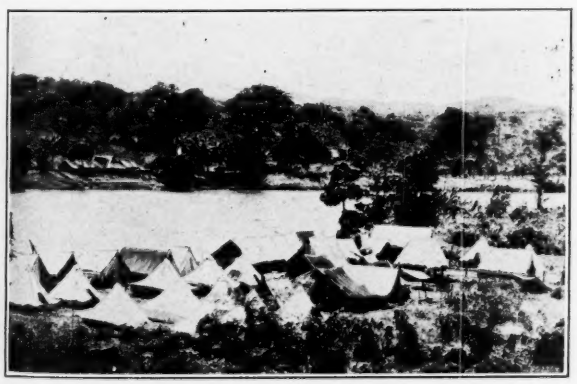
the expert supervision of all medical and sanitary matter by the chief surgeon and his assistants, the health of the troops has been excellent.

There is a young second lieutenant, out of West Point about a year, in charge of the supply line from Fort San Carlos, on Lake Nicaragua, to Greytown. His only connection with the rear is a sixty-year old lake steamer that runs from Granada once a week.



Main Patio of Headquarters Building, Granada

He must supply the camps along 125 miles of river. The American soldier is not satisfied with a native ration of rice and beans; his health, his happiness, and his efficiency demand the good old army ration in full. And such a river! The upper section near the lake causes no trouble. Then comes the rapids section where the river drops 35 feet over five series of rapids, with one place a fall of six feet in one-third of a mile. The lower 20 miles of the river is so choked with sand bars that during the dry season only native dugouts can be used, and they must be dragged by hand most of the way. This young officer has two small launches built of native green wood, half a dozen wooden pontoon boats for barges, and numerous small craft such as native *cayucas*. He has his troubles,



Camp Hoover at Ochoa. Most of Tents Were Later Replaced by Thatched Huts

but he also can see the results of foresight, good judgment, initiative, and leadership. I recommend the job for any youngster who wishes to develop these qualities.

Take the case of the commanding officer of Company F, 11th Engineers, not because his job on the Canal Survey has been more difficult than the others but because he was the first to arrive. The transport anchored in six fathoms of water some miles off shore at Corinto. The company broke out the supplies from the ship's hold and loaded them into Navy motor sailers. Fortunately the "Denver" was in port and her captain made available four motor-sailers for lightering cargo. Upon arrival at the dock, supplies had to be lifted by hand and transferred to waiting freight cars. More than 200 tons were handled between 7:00 A. M. and 11:00 P. M.; by 2:00 A. M. the cars were loaded and the company then got some rest in an old public building at Corinto. The railroad trip to Granada consumed all the next day. At Granada the troops were billeted in an old monastery placed at our disposal by the Nicaraguan government. From Granada the company had to proceed at the rate of one platoon a week via lake steamer to Fort San Carlos, thence down the San Juan River to its work area, which includes the river line from El Castillo to Greytown and the high-level line to the East Divide. The company has had as many as

Temporary Quarters for Married Officers at Ochoa

ten sub-camps scattered through the jungle at one time, to which supplies are transported in frail native dugouts over log-choked tributary streams, or over trails by native packers. Aside from his engineering experience, this company commander has had all the experience and training that go with maintaining an almost independent command scattered over a large area.

The San Juan River Valley is not in the bandit zone, but Sandino, the old enemy of the Marines, has published threats that he will not let the canal work proceed, so some thought has to be given to the safety of the camps.

Company A, 29th Engineers, in the Greytown area, has its base camp in the old Canal Company's machine shops on Greytown Lagoon, and its activities extend along the Deseado River to its headquarters on the East Divide. Much of the diamond drilling to determine foundation conditions is in this area.

Company A, 1st Engineers has the Rivas-Brito area, extending from the Pacific to Lake Nicaragua, the

survey of the lake itself, and the San Juan River area down as far as Castillo. This company has a large area but it has better country in which to operate. Around Rivas there are some so-called roads that can be used by oxcarts in the dry season. In the remainder of the canal zone any wheel transportation is useless. Pack ponies and pack bulls were tried without success.

With respect to the Panama Canal, expensive delays to shipping will occur unless the proposed third set of locks is ready by the time annual traffic needs more facilities. A third set of locks will cost something like $100,000,000, and their construction should begin about ten years before they are actually needed. The traffic at Gatun in 1929 averaged 17 lockages per day; in 1920 the average was seven. It will take at least ten years to increase the facilities of the Panama Canal or to build a Nicaraguan canal. Which is the more profitable investment? The Nicaragua Canal should have

Sub-camp on Lake Silico

locks larger than those of the Panama, which are 1,000 by 110 feet. The trend of commercial ship building is decidedly in favor of larger ships and it may be expected that the size of new locks will have to be greater than that of the locks of the Panama Canal.

Shorter and cheaper traffic lanes create new trade. The cost of transportation is a vital factor in the development and extension of domestic and foreign trade. The Nicaragua Canal will develop commerce and trade in Central America that will never be developed with the Panama Canal alone. The history of the United States shows conclusively that there is hardly any limit to the number of transportation facilities that are desirable, and that each one generally develops commerce and trade far beyond the estimates made for it.

The Nicaragua Canal will shorten the distance from the Atlantic seaboard to the west coast and the orient by about one day, and from the gulf coast by about three days. It will provide a shorter route for 80 per cent of the traffic that used the Panama Canal in 1926.

A second canal will have national defense value—both routes must be destroyed by an enemy before interoceanic communication is severed. The Nicaragua Canal Zone is not as subject to severe earthquake shocks as the Panama Zone. The argument of danger from earthquakes, like that of danger from human enemies, is an argument against Panama as well as

Sub-camp of Company F, 11th Engineers, in Rieo Negro Hills

against Nicaragua, and is an argument for two canals rather than one.

The canal will develop the resources of Nicaragua and promote its prosperity. Prosperity means better roads, more railroads, and other improved means of communication in Nicaragua. A prosperous Nicaragua will mean a quiet Nicaragua. Revolutions and internal strife will cease. Foreign capital can enter Nicaragua in safety. The canal will promote trade and friendly relations with the countries of Central and South America. The United States needs their trade and friendly cooperation.

The Nicaragua Canal will be built within the life-

Supply Train of Company A, 1st Engineers, in Rivas-Brito Area

time of the present generation. Just when work should be initiated may be open to argument and discussion by statesmen, diplomats, strategists, economists, and tax payers in general. The present survey will clear up many of the doubtful factors.

Industry and National Defense

Major General George Van Horn Moseley, U. S. A.

TWO million dollars an hour—that was the sum being spent by the American government during the closing months of the World War. In the aggregate the United States spent twenty-two billion dollars during its nineteen months of active participation in the conflict. That amount approximately equalled the total prior disbursements of the government in the 140 years of its existence, including the expenses of all previous wars. Modern war is an expensive business, even for the apparent victor. It is worse; it is a grim and costly tragedy exacting always a frightful toll in material wastage and in human suffering and sacrifice.

To contemplate the furthering of any national policy through an appeal to arms is today almost inconceivable. Yet, without exception, civilized nations devote a considerable portion of their annual revenues to the maintaining of organizations which would be valueless of the conception of war and conflict could be abolished. This is accounted for by the fact that situations can and do arise under which the possession of military and naval units may be vital to the nation's best interests, and perhaps even to its continued existence. Such a situation may confront the most peace-loving of peoples. In November, 1916, a majority of American voters gave their hearty support to a policy that had kept us out of the European war. A scant five months later the President, with the enthusiastic approval of the mass of our citizens, recommended to the Congress that war be declared against the Imperial German Government, stating, "We enter this war only where we are clearly forced into it because there are no other means of protecting our rights."

Our own theory of national defense is based upon the maintenance of the minimum force that will insure our safety in an emergency until the full strength of the nation can be developed. The development of the nation's complete strength, under our system, would necessarily require considerable time after the beginning of a war. The shorter we can make this period, the smaller can be our peace time establishments, and the less will we have to dig into our pockets to pay for national safety insurance.

To understand the task facing us during such a preparatory period, it is first necessary to grasp clearly the nature of modern warfare. Since the invention of gunpowder, the superiority of the missile over the sword, the spear, and other cutting weapons has continuously increased. Every contrivance that has materially speeded up the rate of throwing bullets and shells at the enemy has been eagerly seized upon by military commanders. But every gain in this respect has served to tie armies more and more closely to supply bases and to ammunition factories. Moreover, huge modern armies cannot subsist on the products of the country in which they operate as did the smaller forces of bygone times, but must depend upon food and supplies brought up from the homeland. A military commander today could not possibly emulate Hannibal's example in marching boldly into the heart of the enemy's territory and there, completely cut off from his own country, campaign successfully for years. A modern force attempting it would quickly be destroyed. An army may be visualized as a gigantic and insatible consumer of munitions—food, clothing, ammunition, weapons, and a thousand other items that are essential to effectiveness in combat. These, generally speaking, must be produced in the home country and forwarded to the fighting front. Failure in the industrial program, or in the transportation systems connecting the army with its source of supply, would inevitably mean defeat for the army.

Any nation, faced with the prospect of taking up arms against a major power, must develop its acres and gear its factories to emergency needs. She must look as anxiously to her ability to produce war munitions as she does to the ability of her armies and navies to use them effectively. Contrast with Hannibal's Italian campaign the experience of the British army in France during the World War. Automatic weapons, big guns, airplanes, gas appliances, tanks, bombs, and thousands of tons of ammunition were but a few of the items used daily on the battle front. To meet the needs of the British forces, and to keep them constantly in condition to fight during a war lasting four years, taxed the industrial capacity of Great Britain to the utmost. Dependent as she is upon foreign commerce, she would have collapsed quickly if her battle fleet and merchant marine had not kept the markets of the neutral world constantly accessible to her. The Germans clearly appreciated this fact. The basic objective of their whole submarine campaign was to disrupt the economic life of Great Britain and thus force her withdrawal from the war. The extraordinary and heroic efforts made by Great Britain to combat this menace had their inspiration in the grim necessities of the moment, and her bitterly won success in preserving her sea communications was a vital phase in the operations that led to the eventual victory of the allies. Due to the continuous drain upon England's economic life, her leaders quickly learned the necessity for exercising a highly centralized control over all the resources of the nation. Before the end was reached, England, and indeed all the other large countries of Europe were, in effect, huge industrial organizations engaged primarily in producing the material things absolutely necessary to support the fighting forces and the civil populations.

The task of producing munitions, great as it is, is not the complete story of the contributions that in-

dustry must make to a nation at war. Since a well organized, smoothly running industrial machine is essential to each belligerent, it follows that the destruction of that machine will be a legitimate objective of its opponent. As previously noted, Germany attempted to disrupt England's industrial life by the use of submarines and aircraft, the only tools permitted to her by her circumscribed position. But the allies, in addition to the well-nigh continuous band of steel with which they surrounded the Central Powers, employed other effective weapons. Neutral countries on the borders of Germany were inviolate to Allied military operations. They soon discovered, however, that England and France held a powerful weapon in their ability to control the flow of some of the material things upon which the life of the neutrals depended. When the United States joined the list of nations arrayed against the Central Powers, this control became almost absolute. Trans-shipments to the Central Powers practically ceased, and the gradual economic strangulation of the Central Powers had a profound effect on the outcome of the war. For themselves, the allies obtained essential items from neutrals through the threat of withholding other items necessary to the welfare of the neutral concerned. Thus, in this day and time, the economic factors may wield as effective an influence upon an enemy as can the armed forces themselves. President Wilson expressed this idea when he said: "Modern wars are not won by mere numbers. They are not won by mere enthusiasm. They are not won by mere national spirit. They are won by the scientific conduct of war, *the scientific application of industrial forces.*"

The term "Nation in Arms" expresses succinctly the thought that every man, every dollar, and every material thing should contribute its full share to make possible the successful conduct of the war. We recognize that every individual should bear his or her burden in the conflict, be it with a gun, a plough, a loom, a lathe, or the humble kitchen stove. Sacrifice for the common good should be uniform and universal, and no class should benefit at the expense of other classes.

Generalizations are easy to make, and make them we do, in spite of the fact that a shrewd old cynic once told us, "All generalizations are false, including this one." Nevertheless, the generalizations that appear above express an aim toward which we should strive. The real test is to evolve methods for the attainment of that aim.

To accomplish all that is implied by the "Nation in Arms" is a task of herculean proportions. Our 122,000,000 people have a national heritage of nearly two billion acres. Our estimated wealth is 400 billion dollars, represented by money, factories and other facilities, land, and raw materials. In the event of war these diverse, often competitive, elements must be quickly shaped into an orderly organization and directed toward the accomplishment of the common purpose.

Before the World War, Germany had not entirely failed to appreciate the necessity for industrial as well as purely military preparations, and had accomplished a great deal along this line. For instance, Germany's railway systems had been so located as to facilitate the mobilization and concentration of troops and supplies in the event of war, rather than solely to meet its transportation needs in peace.

In peace such things are far more easily accomplished under an autocracy than under a more liberal form of government. Once war has actually been declared, however, a democracy such as ours enjoys a great advantage over an autocracy in rallying the individual wealth and efforts of the people to its support. "The highest and best form of efficiency is the spontaneous cooperation of a free people." An autocratic government might succeed in forcing its subjects to fight against their will, consequently the desired spontaneous cooperation would be lacking. On the other hand, the United States could scarcely be plunged into a major conflict except upon the insistence of the majority of its citizens. The wave of popular feeling that would force our nation into war would inspire also each individual to make unusual sacrifices to serve the needs of his country.

Fortunately, also, this country is more nearly self-sustaining economically than is any other great nation. We have huge and efficient manufacturing facilities, and a strong financial system. Except for a few vital items such as rubber, tin, manganese, and several others, all raw materials essential to us in war are found either within our borders or in such close proximity as to insure access to them under any conditions that are likely to exist.

In view of these facts we can always count with reasonable certainty upon the things that President Wilson pointed out as insufficient within themselves —numbers (both men and material), national spirit, and enthusiasm. These are the factors which, intelligently directed, make possible the realization of the ones he set up as the decisive elements, namely, the scientific conduct of war, *and the scientific application of industrial forces.*

When we express our problem in such terms as "the scientific application of industrial forces," we are still talking in generalities, still seeking a solid foundation for the structure we hope to erect. Let us then approach it in this way. We have the industrial forces; we want them to produce the vast quantities of munitions without which modern armies and navies are powerless. Why is this particular problem so difficult to solve?

Primarily, it is the time factor that lifts this whole matter out of the realm of ordinary business transactions. There can be no doubt that American industry could meet all requirements of the Army and the Navy with very little disturbance in its normal procedure if the orders could be placed gradually and spread over an appreciable interval of time. But the opportunity to do this will never exist! When nations go to war, time is vital—to delay is to invite disaster. Large portions of our industry must shift quickly from peace-time operations to the job of producing munitions for the fighting forces.

Usually distinction is made between two great classes of munitions—commercial and non-commercial. Commercial items include all those used in the normal life of the nation, and produced continuously in our country, such as food, automobiles, clothing and other textiles, horses and harness, simple items of mess equipment, shoes, and so on. The second class comprises articles such as ammunition, guns, tanks, fighting planes, gas appliances, uniforms, special vehicles and many others.

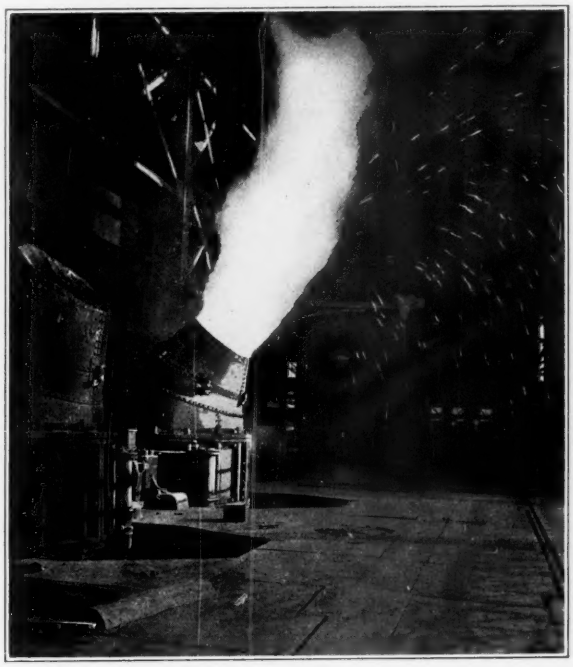
The procurement of the first class is a relatively simple matter. In certain cases production must be gradually accelerated, products must be altered slightly to meet the specific needs, and procurement of necessary raw materials must be assured. All these difficulties appear in aggravated form in the production of non-commercial items, so that no further mention need be made of commercial items.

Procurement of guns, ammunition, and other non-commercial items, is a question of far more serious import. Assuming that the Army and the Navy will, upon the declaration of war, know the approximate quantities and types of munitions necessary—an assumption justified by the zealous and detailed attention now being given this matter in those services—the problem narrows itself down to the organization of industry to supply these particular needs.

Procurement involves a consideration of several essential elements. They are raw materials, transportation, factories, power, labor, and finance.

For instance, consider a simple artillery shell, made principally of steel, brass, and copper. Its production involves first the procurement of pig iron, which must be processed through a blast furnace supplied with coke, lime, and manganese. The coke involves the mining of bituminous coal and passing it through coke ovens. The manganese must be imported from South America. The steel must then go through a plant where it is forged, machined, and equipped with a firing mechanism. The copper in the shell, obtained in a different place, is extracted and refined under entirely different methods. After the powder has gone through a similarly complicated and intricate process. all elements are shipped to a plant where they are finally assembled into a completed shell.

The flow of all these raw materials must be continuous and uniform, and if the supply of any one promises to be inadequate, we must find a substitute for it, or other sources where it may be obtained. Adequate transportation facilities are essential, for even the most favored spot on earth does not contain all the necessary elements for the production of a piece of steel. Every industrial facility performing a function in the whole chain of these operations must be assured of power, labor, and adequate financial support. Some of the factories must be converted from other uses, since in our country no commercial plants are engaged in the peace-time production of artillery ammunition. This task in itself is an intricate one. Very recently the executives of an automobile plant, popularly credited with being the most efficient institution of the kind in America, decided to re-design the model of the car they produced. Their product was not changed from an automobile to a shell—it was simply a change in the type of the car to be marketed. Yet, with all plans carefully worked out months in advance, that factory, at an expenditure of millions of dollars, required a full year before it was again producing automobiles in marketable quantities.



Bessemer Converter in Action, Lackawanna Steel Company

Suppose, that without warning, the same factory had been asked by the Government to begin the quantity production of artillery ammunition. How much time would have elapsed before completed shells would have been ready to serve the needs of the fighting forces?

Thus, a single requirement of the fighting forces—a shell—involves many ramifications of industry, and the production of some of its component parts occasions radical changes in equipment and procedure. Consequently, it is not difficult to understand that when we engage in the simultaneous production of thousands of items of equal importance, overlapping and interference will occur in marshalling to the proper points, at the proper times, the essential elements of production.

Moreover, while industry is attempting to adjust itself to this strain, it must continue to supply the necessities of the civilian population. The industrial machine of this great country has been designed and geared to a certain speed to meet the demands made upon it in normal times. The war load must be distributed judiciously, so as to avoid inefficiency, delay and possible disaster.

The Second article of this Series will appear next month.

Defense Against Tanks

Lieutenant Colonel K. B. Edmunds, Cavalry

DISCUSSIONS of tank actions or defense against tanks should be based on certain assumed characteristics of the future tank, for the purpose of the present discussion they are:

a. Invulnerability to anything but a direct hit by artillery.

b. A maneuvering speed of from 10 to 60 miles an hour on any terrain over which the tank can operate at all.

c. A radius of action and a freedom from mechanical faults equal to those of the present automobile.

To anyone who has followed the recent developments of the track-laying or the combination wheel and track vehicle, both in this country and abroad, it will be evident that these assumptions are by no means visionary and that there will be tanks with these characteristics or with characteristics closely approaching them in our next war. It is high time for us to develop some ideas for their tactical use in both offense and defense.

In another paper[1] the conclusion is reached that a mechanized force, as a separate arm, is a weapon of the army commander and that he will use it in attack in the direction of the main blow of his army, and against objectives well in rear of the objectives of his infantry divisions. In considering the defensive it is necessary to realize that fast tanks will also be present in the attacking divisions and corps, and that defensive measures must be taken along the whole front of an army position, as well as on any exposed flank, excepting only on those portions which the terrain makes obviously impracticable for tank maneuver.

Present Defensive Measures

Apparently our present defensive measures are limited to developments of the World War anti-Tank gun. The Field Artillery is very properly turning its attention to fire on rapidly moving targets, and we may expect a larger percentage of hits on such targets in peace-time practice as a result of this training. But we must guard against the conclusion that results on the battlefield will even approximate those on the target range.

The division artillery field order, on the defensive, usually directs that two or more guns in each (infantry) brigade sector be located for antitank defense. Defense in depth may be obtained by directing the most advanced batteries of the supporting artillery to select alternate gun positions for antitank employment.

Further than this we can not expect field artillery to go until a new doctrine for the defense is developed. Its present measures can be considered adequate only on the assumption that they will be effective in stopping a very large proportion of fast tanks before the latter can penetrate the organized defensive areas.

The Infantry has recently made a heavy increase in the number of 37 mm. guns with the regiment, and they now also appear in the cavalry regiments. While these guns are not intended exclusively for use against tanks, their battle positions are such that they can be used for that purpose. The efficacy of their fire against tanks, however, has not been fully demonstrated.

Defense by Counterattack

So far as is known by the writer, the system of defense by antitank guns and 37 mm. guns is the only system contemplated at present in our Service. Its disadvantages are quite apparent:

a. We may expect a tank attack to be supported closely by artillery using direct fire. As the attacker has the initiative, he can concentrate a number of guns to support an attack at the point selected greater than the number of antitank guns in the defense at that point. The fire of these supporting guns being directed at stationary targets (the antitank gun of the defense) will be more effective than the defensive fires on rapidly moving tanks.

b. Antitank guns at the point selected for attack will be blinded by smoke.

c. The system requires the use of an unreasonably great number of guns for any open warfare situation. The number necessary to defend the entire front and flanks of a field army would exceed the number of light guns in a field artillery brigade. These guns can not be used for any purpose other than antitank; they have no power of maneuver; and they must either be taken from the supporting artillery or added to the large number already with the divisions. The system may be likened to that of a country which defends its coast by spacing coast defense guns along it, rather than by building a mobile navy and by organizing its army for counterattacks on landings.

In the future, defense by antitank guns will probably be limited to those localities on the front and flanks of a field army which are most vital to hold, or which are most vulnerable to tank attack. The remainder of the ground held will be left to the 37 mm. guns of the infantry and the cavalry.

It is curious that, while we habitually oppose infantry by infantry, cavalry by cavalry, and aviation by aviation, it has apparently not occurred to anyone to

(1) "Tactics of a Mechanized Force, A Prophecy," *Cavalry Journal* and *Field Artillery Journal*, July, 1930.

oppose tanks by tanks.[2] The failure is probably a result of our habit of regarding the tank as a purely infantry weapon, and an auxiliary of the assault battalion. The tactics of the fast tank will be entirely different from this, and will be much like the mounted attack and counterattack of cavalry. The shock action of a tank unit against a tank unit is no more fantastic than the collision of two bodies of cavalry, and we may expect in the future both the crash of tank against tank and the melee of individual tank fire duels at ranges short enough to insure hits—25 to 100 yards. This deduction is perfectly reasonable from the characteristics of the fast tank.

Presumably the organization of an army in defense will be similar to that of its attacking opponent. There will be division tank units for local counterattack against the tanks of the assault divisions, as well as an army mechanized force to meet the blow of the enemy's mechanized force. All of these units will be capable of rapid maneuver and concentration opposite points threatened, differing in this respect from the antitank guns, which are fixed in position. In counterattack the units will have the advantage of meeting their opponents when the latter are disorganized by a long advance and by the resistance of the defending front line troops, and separated from their supporting artillery.

Conduct of the Defense in a Division Sector

Before considering the conduct of the defense it is necessary to indicate briefly the conduct of the attack. An army mechanized force will probably consist of three main combatant elements:

a. A shock component of several waves of light tanks;

b. A mopping-up and holding component of machine gunners and automatic riflemen in carriers equal in speed and maneuvering ability to the light tank;

c. Fire support, consisting of motorized artilley, also equal to the light tank in speed and maneuver.

It is highly probable that all of these components will be present also in the division tank units, which will differ from the army mechanized force in size rather than in composition. They are all necessary, as neither foot troops nor division artilley can move fast enough to support and exploit an attack by fast tanks.

Assume, now, an attack by a division tank unit leading the main blow of its division in an open warfare situation against a passive defense. The objective may be the enemy's supporting artillery. The shock component will move out in two or more waves and proceed through the enemy's organized ground to its objective. The holding component will immediately follow the shock component, organize the ground won, and form a defensive line behind which the shock component may reorganize. The artillery component, at about the time of the "jump-off" and probably a little before, will take positions for direct fire and open on the antitank guns of the defense as the latter expose themselves. Having completed this mission, a matter of only a few minutes, the artillery will move forward rapidly to support the holding component.

The infantry will follow the tank attack. This paper is not concerned with the coordination between tanks and infantry, but it may be remarked that the extreme difference in speed between the fast tank and foot troops make it necessary to start the tank attack after the infantry attack is well developed, when the defending outposts have been driven in and the front lines of the attack are close to the main line of resistance. In this case the tanks would pass through the intervals between friendly infantry units. An alternative would be to have, in addition to the "leading tanks" described above, "accompanying tanks" for close infantry support. This, however, would cause undesirable dispersion of tank effort.

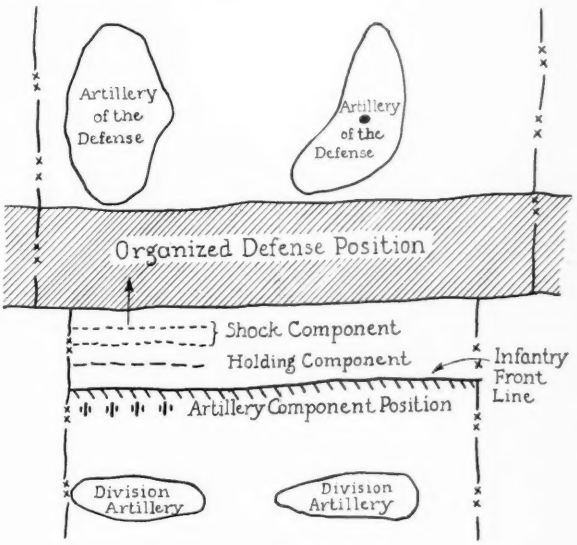


Figure 1. The Attack

Assuming an average speed of 20 miles an hour and a distance of not more than 5,000 yards from the "jump-off" to the tank objective, those vehicles of the shock and holding components which succeed in winning through the organized defense will be on their objective in from five to ten minutes after the departure, and a few minutes more will see the arrival of the artillery component. It is evident from this that a counterattack by the defense cannot expect to meet the attacking tanks either in front of the organized defensive position or on the position. The battle of the tanks will take place after the organized battle position has been penetrated by the attacking tanks.

What, then, becomes of the defending infantry on the battle position? It is not to be expected that they will be completely destroyed. A combat group will

(2) The above was written before seeing the *Infantry Basic Field Manual*, Vol. II, which contemplates the use of tanks in counterattack. The publication named, however, is concerned principally with the tactics of the tank "as is" and devotes little attention to the tactics of the future fast tank. Quoting: "Except when tanks are employed in large numbers, tank *vs.* tank action is unlikely to occur frequently. When such action does occur, fast tanks with adequate fire power, preferably armed with semiautomatic cannon, will, through offensive action, be of great value as defense against hostile tanks." The manual also regards the "leading tank" as a weapon of the corps rather than of the division.

be destroyed only when an attacking tank passes directly over its position, and the tanks will rather seek the lines of least resistance and pass through the intervals. The tanks will break wire, will destroy a proportion of infantry weapons, will divert the fire of the defense from the attacking infantry, will disrupt communications—but they cannot be expected completely to annihilate the defense.

The infantry, or dismounted cavalry, remaining on the battle position must be trained to continue their resistance after their lines are penetrated by the tanks. Of course we have this principle already as applied to an infantry infiltration, but it must be expected to apply also to the enormously faster penetration of the fast tanks. While we have no historical examples of attacks by fast tanks, such as that described above, we have the analogy of a mounted attack by cavalry against dismounted troops. There were several of these which were successful during the World War in Palestine and, on a smaller scale, on the Western Front. It is noteworthy that the infantry resistance, whether German or Turk, ceased as soon as the lines were penetrated by the horsemen. Compare this with Quatre Bras and Waterloo, where the French cavalry penetrated between the British squares and remained there for some time without being able to break them. It is only a few years ago that our Infantry was trained to meet a cavalry attack by rallying by squad or section. The spirit of this training must be revived in a different form.

Hedges of bayonets backed by the fire of small arms are no obstacle to tanks as they are to horsemen. However, we can place the combat groups on ground which is difficult for tank movement, then, by artificial means, protect them further from physical contact. If no other means can be found, ground grenades are sufficiently portable for open warfare and might well displace, in our transportation, wire which has become less effective with the advent of the fast tank, and which takes longer to install. A few large ground grenades distributed along the front and flanks of each combat group should break the formation of tanks and cause them to flow between, rather than over, these islands of defense, which can then continue their resistance until relieved by counterattack.

The extent to which these passive measures of defense are installed will depend largely on the time and materials available with which to organize the ground, but a few grenades would be at least as close to the troops as the combat trains. The means available should, in any case, be concentrated on the fortification of localities actually occupied, rather than scattered in an attempt to make an impenetrable barrier along the whole front, as the latter system will fail to give an adequate defense anywhere and will hamper the maneuver of the defending troops.

The maneuvers of the tanks of the defense will be similar to those of any defensive reserve. As soon as the direction of the main blow of the attack can be determined, the tanks of the reserve will be moved to a position from which to launch a counterattack. The conduct of the counterattack will be similar to the conduct of the attack described above. The shock component will be directed on the shock component of the attacking force. The holding component will probably be directed on the battle position. The artillery component will support the counterattack by direct fire, its targets in this case being the hostile tanks. The infantry reserve will move to restore the battle position and relieve the troops deployed thereon.

Conduct of the Army Defense

The action described above will be repeated in each division sector along the entire front of battle. Where the tank forces are nearly equal the advantage should lie with the defense. The offense will win where, by massing tanks, it is possible to get through the organized defensive area with a sufficient tank reserve to dispose of the tanks of the defense in that portion of the field. As in a cavalry battle, the least formed reserve will usually decide the victory.

The mechanized force of the defending army will be held in reserve to meet the enemy's mechanized force, which in turn will be used in the direction of the main blow of its army. If the attack maneuver be

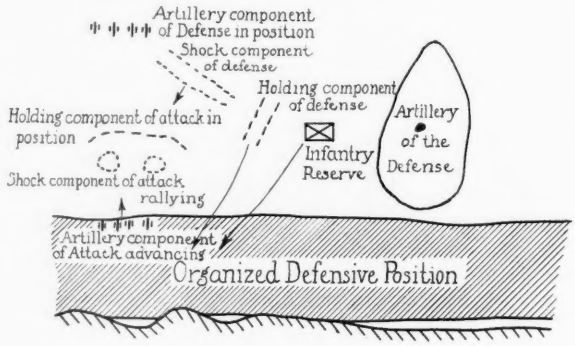


Figure 2. The Counterattack.

an envelopment, the attacking mechanized force will be directed on objectives well in rear of the infantry envelopment and it will be followed and its success exploited by cavalry divisions. In a penetration the employment of the cavalry must be delayed until arrangements for its passage can be made through the organized defensive area, and through the attacking infantry units. The counterattack of the defending mechanized force will not differ materially from the tactics of the division tank units.

The foregoing has assumed a situation in which one army has had time deliberately to occupy and organize a position, on which its opponent has launched a coordinated attack. The principle of defense against tanks by counterattack applies with even more force to troops in deployed defense, on the march, in a meeting engagement, in retreat, or in withdrawal; for in these cases there will be less time for organization of ground and fire or the location of antitank guns. Marching troops, whether infantry or cavalry, may be able to avoid the shock of tanks to some extent by deploying and moving into the intervals between them, but have no offensive power against tanks and no de-

fense against their fire. Evidently we must depend on aviation to report a tank attack in sufficient time for our own tanks to meet it.

Conclusions

In the organized (position) defense we must either accept the principle that antitank artilley and 37-mm. guns can stop a tank attack by fire, or we must abandon the rigidity of the battle position, assume that it can be penetrated rapidly, and depend on a mobile reserve of fast tanks to meet the penetration.

The first is a dangerous doctrine, and one not supported even by experience with the slow tanks of the World War. Should we cling to it, and should it fail, it means that our command posts and communications will be destroyed, our supporting artillery silenced, and our infantry reserves immobilized wherever the fast tanks of our opponents penetrate. The attacker, supported by his artillery, can then reduce the battle position at his leisure.

The second theory modifies our conception of the battle position, which becomes a permeable barrier on which the waves of the tank attack are broken and disorganized, but not stopped. It involves a greater dependence on the counterattack, particularly of tanks, brigade and division reserves; and an increased spacing of groups deployed on the battle position, with a corresponding increase in the strength of reserves behind it. The principle involved is not new, for we find the troops of Alexander instructed to open their files and allow the Persian chariots, the tanks of that day, to pass through.

In situations other than position defence, tanks, coordinating with aviation, must be maneuvered to meet a tank attack before the latter can strike our columns.

Infantry and dismounted cavalry, on the defensive, must be trained to continue their resistance when their deployed combat groups are completely isolated and surrounded by the advance of the enemy's tanks followed by infantry. Further, some artificial means must be found to protect combat groups from physical contact with tanks, and these means must be sufficiently portable for use in open warfare situations. Ground grenades have already been mentioned. It is probable that additional expedients can be developed. If tanks can destroy combat groups at will, the ideas of some people will become facts—infantry and cavalry as we understand the terms now will disappear from the battlefield.

Field artillery is faced with the need of developments in gunnery, tactics, and materiel. More time and effort must be placed on training in direct fire on rapidly moving targets. The fire support of a fast tank attack or counterattack is a tactical problem totally different from the missions heretofore assigned division artillery, although it resembles in some respects the operations of horse artillery. A mount and tractor must be designed with speed and maneuvering power equal to those of the fast tanks which they will accompany, and capable of going into and out of action with great rapidity. Seconds will count. This requirement of mobility may result in the adoption of a calibre less than 3-inch (or 75-mm.) for this type of artillery. Its ranges will usually be short and its striking power need not be greater than that necessary to disable a tank with a direct hit.

The conception of a tank battle will affect tank armament. Each tank must carry a weapon capable of disabling a tank with a direct hit.

The College Trained Army

First Lieutenant Ralph A. Palmer, 338th Infantry

COLLEGE graduates are notorious for deserting the fields of activity for which they prepared while in college. They leave not only the Reserve but professions and businesses for which they have spent many more hours in fitting themselves. The loss after graduation is not merely a sluffing off of the poorest men. There is a loss all down the line, from the best to the poorest, which indicates that the trouble is not so much in the quality of men graduated as in the reception that they get after graduation.

To state the situation in a brief, mild way which may not suggest treason, the student officer who graduates from the Reserve Officers' Training Corps into the Officers' Reserve Corps also graduates, under present conditions, from daily contact with and application of military training to irregular contact and application; from a fixed training program to an indefinite training program; and from a status recognized by all of his daily associates to a status which is known and significant to probably about one-twentieth of his daily associates. This is a trying test upon the loyalty and interest of an officer; a test which is unnecessary and which few R. O. T. C. graduates are prepared to pass.

The R. O. T. C. graduate needs to be made to feel the responsibility of his commission. He neglects it because it does not command attention. He fails to take an interest in it because it has not been made to seem worthwhile.

Four years of R. O. T. C. training in time of peace cannot develop in a man the interest in and loyalty to the service developed by a period of active duty in time of war. The officers produced by the R. O. T. C. are therefore easy victims to some of the hundred and one other interests which are daily competing for their attention. If the O. R. C. expects to compete successfully for its share of the time and attention of its recruits, it will have to increase greatly the number and frequency of its contacts.

So far as the Reserve Officer on inactive status is concerned, the custom of the service in the matter of social calls needs to be reversed. Officers with World War experience and R. O. T. C. graduates who have survived the critical period of the first commission should assume the initiative in calling on and otherwise making contacts with officers junior to themselves, to drive home the importance of the national defense program, the O. R. C. as an element of it, and the junior officer as an element of the O. R. C. The optional group conference system is not adequately meeting the contact needs of these junior officers. This matter of contact, particularly at the lower end of the chain of command, is of sufficient importance to warrant its being named as an activity required for recommission or promotion.

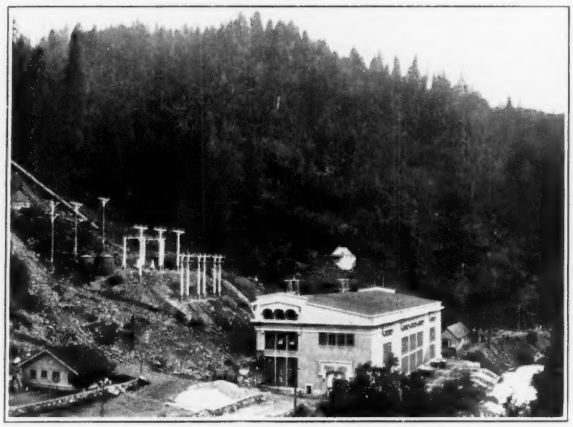
The contacts that are being made can be increased in effectiveness if the World War men will watch their attitude toward preparedness in talking to college trained officers. Men who have been through one or more wars are mostly realists. R. O. T. C. graduates, because of their youth and college training, are more inclined to be idealists. That accounts for the fact that older officers often talk preparedness for the next war to young officers who are interested in preparedness as a means of maintaining peace. Whatever may be the personal convictions of the war officers, there is only one basis on which national defense can be "sold" to R. O. T. C. graduates and the American civilian public in time of peace. It is expressed in the motto of the Reserve Officers Association, "Patriotic Preparedness Promotes Peace."

Graduates from the R. O. T. C. will also learn to respect and value their commissions more highly if the significance of these commissions in civil life (on inactive status) is increased. Ceremony, recognition of ability, and frequent opportunity to demonstrate ability are provided to help officers and men on active duty to maintain a high standard of efficiency. These elements seem to have been forgotten in providing for the inactive duty training of the reserves. Those who were in the war have their psychological demand for ceremony and recognition met in a measure by their veterans' organizations and activities on patriotic occasions. The R. O. T. C. graduate, who needs them more, has not even these. Civilians, when they think of it at all, think of patriotism and military leadership only in terms of men who have fought in past wars or who are in the Regular Army. This is a situation which the World War veterans who are still in the Reserve can do something to correct. They can, in their veterans organizations, give occasional social recognition to the college trained officers and see that it comes to the attention of their whole community. They can see that these younger officers are invited to take part in local patriotic ceremonies, and possibly can find other means of letting the public know that they have among them young men who are making personal sacrifices to help maintain a national defense program and thereby to further the hope of peace.

War is too vague and remote a possibility in the minds of most R. O. T. C. graduates to stand alone as a strong incentive to training. Being recognized, trained, and subject to emergency call for civil law enforcement would enable the reserve officer to see that his military training might become valuable to himself and his friends at any time. The handling of civil emergencies such as floods, strikes, and local crime situations call for the same quality of leadership and much of the same technique in which the reserve officer is trained. With a little special training he

could be highly useful in situations which strain ordinary civil law-enforcement facilities but which are not serious enough to warrant calling out the National Guard, or which require quicker action. There would be no legal complications to deputizing as a civil officer a reserve officer not on active duty.

Reserve officers must be ready for the call. The initial cost of the uniform and equipment is an item



Study of the Tactical Significance of Localities is Important

which keeps some R. O. T. C. graduates from ever becoming active reserve officers. At some schools the cadet uniform is so different in style from an army officer's uniform that it is a dead loss after graduation, and the graduates of those schools have to choose between paying about a hundred dollars out of their own pockets before going to camp, to get a passable uniform, or never going to camp. Many choose the latter course. If it is considered important that some schools have a distinctive cadet uniform it should also be considered important that this should not impose a financial burden on their graduates in taking up their duties as reserve officers; or should not, as is more often the case, defeat the purpose of their R. O. T. C. training.

Where officers on active duty are required to pay into camp headquarters money for mess, personal services, and the like, there should be a public accounting of these funds. By the time he has graduated from the R. O. T. C. a man knows just enough about the world to be suspicious of any expenses which are not satisfactorily accounted for. To appropriate arbitrarily a part of his pay and not account for it more definitely than to say it is for the mess, or electric lights, or orderly service, leaves a bad impression on him. It breeds dissatisfaction. To eliminate this source of dissatisfaction as far as possible, there should not only be a public accounting of such funds, but a summarized statement of the accounts should be placed in the hands of each officer whose money is involved.

Some suggestions for improving the training of reserve officers, to stimulate the interest of R. O. T. C. graduates, are:

1. Require or offer some special inducement to R. O. T. C. graduates to take active duty training at the first opportunity after graduation. A satisfactory period of active duty training is necessary to give the graduate a little confidence in his ability as an officer, to stimulate his interest, and to establish a habit of participation in reserve affairs.

2. Break up the training requirements for recommission or promotion into monthly tasks. The present lack of a definite inactive duty training schedule encourages the officer to keep putting off his training until it is a burdensome task and he is tempted to choose the simple alternative of dropping the whole matter.

3. Training should be planned for the efficient use of such time as the reserve officer may be able to give it. In this line, army extension course lessons should be shortened so that an officer may easily be able to complete a lesson at one sitting.

4. There is a tactical advantage in having each officer well trained in and capable of performing any and all of the duties of his grade and branch. In the Regular Army this is possible. In the Reserve it is impossible. If reserve officers were allowed to specialize more in their training along lines consistent with their individual inclinations, abilities, civil training, and pursuits, the gain in efficiency and interest might more than offset the loss in flexibility. In other words it might be better to let a man train to be a good rifle company officer, machine gun officer, or supply officer and give him a permanent assignment in his chosen line, than to attempt the discouraging task of training him a little in all the duties of his grade and branch, but not enough to enable him to work efficiently anywhere.

5. Require and provide for the reserve officer to study the military significance of the terrain features of the country in the vicinity of his home. This study should include local resources of all kinds and railroads which might be units in the industrial preparedness program. Such training would stimulate him to recall at sight the military significance of each feature in the environment of his daily life, would improve his ability in reconnaissance, and would add interest to his training.

6. Give more consideration to regimental assignment in active duty training and place more emphasis upon duties of mobilization and problems of administration. The latter should include a study of the actual management of the mess at which the officers eat, and the problems it involves. This would do much to make the officers satisfied not to complain about necessary expenses and inconveniences, and would help to eliminate any unnecessary cost and cause for dissatisfaction.

7. Concentrate training mostly on principles and technique which are not apt to become obsolete soon.

The O. R. C. is not simply a regular army short of funds. A skeleton organization of war veterans and college men, partially trained as officers, to be maintained and further trained mostly on an inactive duty basis, presents many administrative and training problems which differ from those of the Regular Army and the National Guard. Their lack of contact with troops, their civil status, training-interests, pursuits, independence, freedom from discipline, and peacetime apathy toward preparedness, demand different leadership and methods than are traditional in the usual military organization. Let us study more carefully to learn where transplanted Regular Army methods will work, and where new and original solutions are necessary.

Success in War

Major George S. Patton, Jr., Cavalry

WAR is an art and as such is not susceptible of explanation by fixed formula. Yet from the earliest time there has been an unending effort to subject its complex and emotional structure to dissection, to enunciate rules for its waging, to make tangible its intangibility. As well strive to isolate the soul by the dissection of the cadaver as to seek the essence of war by the analysis of its records. Yet despite the impossibility of physically detecting the soul, its existence is proven by its tangible reflection in acts and thoughts.

Above armed hosts there hovers an impalpable something which on occasion so dominates the material as to induce victory under circumstances quite inexplicable. To understand this something we should seek it in a manner analogous to our search for the soul; and so seeking we shall perchance find it in the reflexes produced by the acts of the Great Captains.

But whither shall we turn for knowledge of their very selves? Not in the musty tomes of voluminous reports or censored recollections wherein they strove to immortalize their achievements. Nor yet in the countless histories where lesser wormish men have sought to snare their parted ghosts.

The great warriors were too busy and often too inapt to write contemporaneously of their exploits. What they later put on paper was colored by strivings for enhanced fame, or by political conditions then confronting them. War was an ebullition of their perished past. The violent simplicity in execution which procured them success and enthralled the world looked pale and uninspired on paper, so they seasoned it.

The race yearns to adore. Can it adore the simple or venerate the obvious? All mythology and folk-lore rise in indignant protest at the thought. The sun gave light; therefore he was not hot gas or a flame, but a god or a chariot. The ignus fatuus deluded men of nights. It was a spirit; nothing so simple as decomposition could serve the need.

So with the soldier, to pander to self love and racial urge he attributes to his acts profound thoughts which never existed. The white-hot energy of youth which saw in obstacles but inspirations and in the enemy but the gage to battle, becomes to complacent and retrospective age the result of mathematical calculation and metaphysical erudition; of knowledge he never had and plans he never made.

With the efforts of the historians the case is even worse. Those who write at the time are guilty of partisanship and hero worship. While those who write later are forced to accept contemporaneous myths and to view their subject through the roseate light which distance, be it that of time or space, sheds ever to deprive us of harsh truth. In peace the scholar flourishes, in the war the soldier dies; so it comes about that we view our soldiers through the eyes of scholars and attribute to them scholarly virtues.

Seeking obvious reasons for the obscure, we analyze their conduct as told by historians and assign as reasons for their success apparent, trivial things. Disregarding wholly the personality of Frederick we attribute his victories to a tactical expedient, the oblique order of battle. Impotent to comprehend the character of Rome's generals, a great historian coins the striking phase: "At this time the Roman legionary shortened his sword and gained an empire." Our research is further muddled by the fabled heroism of all former fighters. Like wine, accounts of valor mellow with age, until Achilles dead three thousand years stands peerless.

Yet through the murk of fact and fable rises to our view this truth. The history of war is the history of warriors; few in number, mighty in influence. Alexander, not Macedonia, conquered the world. Scipio, not Rome, destroyed Carthage. Marlborough, not the Allies, defeated France. Cromwell, not the Roundheads, dethroned Charles.

Were this true only of warriors we might well exclaim: "Behold the work of the historian!" but it is equally the case in every phase of human endeavor. Music has its myriad of musicians but only its dozen masters. So with painting, sculpture, literature, medicine or trade. "Many are called, but few are chosen."

Nor can we concur wholly with the alluring stories in the advertising sections of our magazines which point the golden path of success to all and sundry who will follow some particular phase of home education they happen to advocate. "Knowledge is power," but to a degree only. Its possession per se will raise a man to mediocrity but not to distinction. In our opinion, indeed, the instruction obtained from such courses is of less moment to future success than is the ambition which prompted the study.

In considering these matters, we should remember that while there is much similarity there is also a vast difference between the successful soldier and the successful man in other professions. Success due to knowledge and personality is the measure of ability in each case; but to all save the soldier it has vital significance only to the individual and to a limited number of his associates. With the soldier, success or failure means infinitely more, as it must of necessity be measured not in terms of personal honor or affluence but in the life, happiness and honor of his men—his country. Hence the search for that elusive secret of military success, soul, genius, personality—call it what you will—is of vital interest to us all.

As has been shown, history and biography are of but limited assistance and the situation is still further complicated by other circumstances which we shall

now discuss. First, we must get an harmonical arrangement between two diametrically opposed views—namely, that there is "Nothing new under the sun" and that there is "Nothing old."

Referring to the first assumption, that of immutability, we refer to the tendency to consider the most recent past war as the last word, the sealed pattern of all future contests. For this theory we of the military profession are largely to blame. First we realize, none

Stonewall Jackson—In War the Right Man is Everything.

better, that in the last war it was necessary to make many improvisations and to ply our trade with ill-assorted tools. We then read our books and note with a thrill of regret that in the war next preceding our own experience: "Things ran with the precision of a well-oiled machine," for so the mellowing influence of time has made it appear to our authors.

In our efforts to provide for the avoidance, in future, of the mistakes which we personally have encountered, and to insure to ourselves or to our successors the same mathematical ease of operation of which we have read, we proceed to enunciate rules. In order to enunciate anything we must have a premise. The most obvious is the last war. Further, the impressions we gained there were the most vivid we have ever experienced; burned on the tablets of our memories by the blistering flash of exploding shell, etched on our souls by the incisive patter of machine gun bullets, our own experiences become the foundation of our thoughts and, all unconscious of personal bias, we base our conceptions of the future on our experience of the past.

Beyond question, personal knowledge is a fine thing; but unfortunately it is too intimate. When, for example, we recall a railroad accident, the picture that most vividly presents itself to us is the severed blue-gray hand of some child victim; not the misread signals which precipitated the tragedy. So with war experiences, the choking gas that strangled us sticks in our memory to the more or less complete exclusion of the important fact that it was the roads and consequent abundant mechanical transportation peculiar to western Europe which permitted the accumulation of enough gas shells to do the strangling.

Even when no personal experience exists, we are bound to be influenced by the most recent experience of others. Because in the Boer War the bayonet found no employment, we all but abandoned it, only to seize it again when the Russo-Japanese conflict redemonstrated its value. Going back farther, we might point countless other instances of similar nature, as witness the recurrent use and disuse of infantry and cavalry as the dominant arms according to the most recent "lesson" derived from the last war based invariably on special conditions, in no way bound to recur, yet always presumed as immutable.

So much for the conservatives; now for the optimists: The "Nothing old" gentry. These are of several species, but first in order of importance come the specialists.

Due either to superabundant egotism and uncontrolled enthusiasm, or else to limited powers of observation of the activities of other arms, these people advocate in the most fluent and uncompromising manner the vast future potentialities of their own weapon. In the next war, so they say, all the enemy will be crushed, gassed, bombed or otherwise speedily exterminated, depending for the method of his death upon the arm to which the person declaiming belongs. Their spectacular claims attract public attention. The appeal of their statements is further strengthened because they deal invariably in mechanical devices which intrigue the simple imagination, and because the novelty of their schemes and assertions has a strong news interest which insures their notice by the press. Earlier examples of this newspaper tendency to exploit the bizarre is instanced in the opening accounts of the Civil War where "masked batteries" and "black horse cavalry" seemed to infest the whole face of nature.

Both the standpatters and the progressives have reason of sorts, and as we have pointed out, we must seek to harmonize the divergent tendencies.

A British writer has said: "The characteristic of war is its constant change of characteristic," but as is ever the case with aphorisms his remark needs explanation. There is an incessant change of means, to attain the inevitable end, constantly going on; but we must take care not to let these inevitable sundry means, past or predicted, attain undue eminence in the perspective of our minds. Since the beginning, there has been an unending cycle of them, and for each, its advocates have claimed adoption as the sole means of successful war. Yet the records of all time

show that the unchanging ends have been, are, and probably ever will be, the securing of predominating force, of the right sort, at the right place, at the right time.

In seeking a premise for the enunciation of rules for the employment of this predominating force, we must cull from the past of our experience or reading the more permanent characteristics, select our weapons and assign to them that importance which reason and the analogy of experience indicate that they will attain. Bearing in mind these considerations and the definition of predominant force, we shall resume our search for success in war.

No matter what the situation as to clarity of his mental perspective, the conscientious soldier approaches the solution of his problem more or less bemuddled by phantoms of the past, and deluded by unfounded or unproved hopes for the future. So handicapped, he assumes the unwonted and labored posture of a student, and plans for perfection, so that when the next war comes that part of the machine for which he may be responsible shall instantly begin to function with a purr of perfect preparation.

In this scholarly avocation, soldiers of all important nations use at the present time what purports to be the best mode of instruction—the applicatory method. The characteristics of some concrete problem are first studied in the abstract and then tested by applying them, with assumed forces and situations, in solving analogous problems either on the terrain or on a map representation of it. This method not only familiarizes the student with all the tools and technicalities of his trade, but also develops the aptitude for reaching decisions and the self assurance derived from demonstrated achievement.

But as always there is a fly in the amber. High academic performance demands infinite intimate knowledge of details, and the qualities requisite to such attainments often inhabit bodies lacking in personality. Also, the striving for such knowledge often engenders the fallacious notion that capacity depends upon the power to acquire such details rather than upon the ability to apply them. Obsessed with this thought, students plunge in deeper and ever deeper, their exertions but enmeshing them the more until, like mired mastodons, they perish in a morass of knowledge where they first browsed for sustenance.

When the prying spade of the unbiased investigator has removed the muck of official reports and the mire of self-laudatory biographies from the swamp of the World War, the skeletons of many such military mammoths will be discovered. Amid their mighty remains will lurk elusive the secret of German failure. Beyond question no soldier ever sought more diligently than the Germans for prewar perfection. They builded and tested and adjusted their mighty machine and became so engrossed in its visible perfection, in the accuracy of its bearings and the compression of its cylinders, that they neglected the battery. When the moment came, their masterpiece proved inefficient through lack of the divine afflatus, the soul of a leader. Truly in war "Men are nothing, a man is everything."

Here we must deny that anything in our remarks is intended to imply belief in the existence of spontaneous untutored inspiration. With the single exception of the divinely inspired Joan of Arc, no such phenomenon has ever existed, and as we shall show, she was less of an exception than a coincidence. We require and must demand all possible thoughtful preparation and studious effort, so that in war our officers may be equal to their mighty trust—the safety of our country. Our purpose is not to discourage such preparation but simply to call attention to certain defects in its pursuit. To direct it not towards the glorification of the means—study; but to the end—victory.

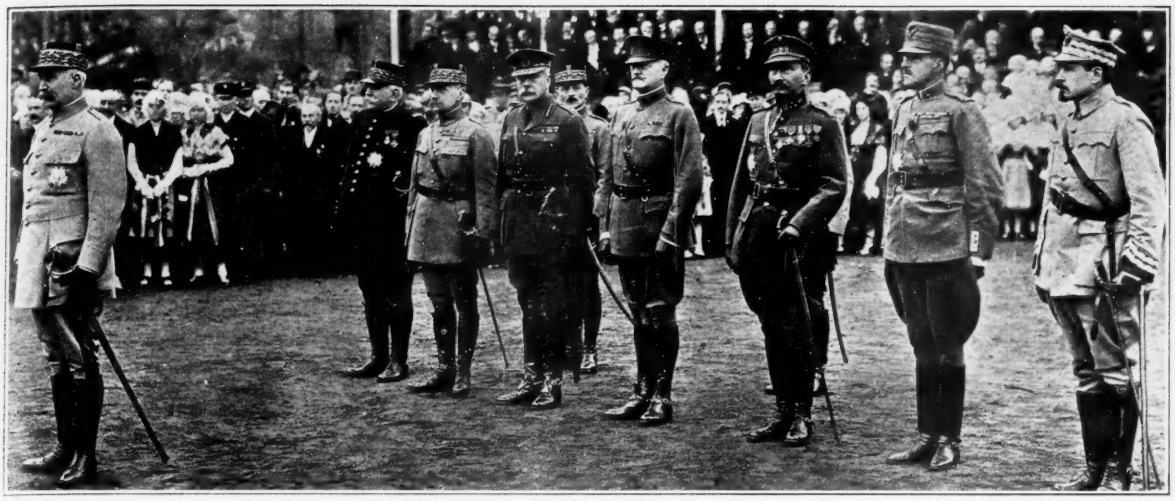
In acquiring erudition we must live on, not in, our studies. We must guard against becoming so engrossed in the specific nature of the roots and bark of the trees of knowledge as to miss the meaning and grandeur of the forests they compose. Our means of studying war have increased as much as have our tools for waging it, but it is an open question whether this increase in means has not perhaps obscured or obliterated one essential detail; namely, the necessity for personal leadership.

Hannibal, Caesar, Heraclius, Charlemagne, Richard, Gustavus, Turenne, Frederick, Napoleon, Grant, Lee, Hindenburg, Allenby, Foch, and Pershing were deeply imbued with the whole knowledge of war as practiced at their several epochs. But so were many of their defeated opponents; for as has been pointed out, the success in war lies not wholly in knowledge. It lurks invisible in that vitalizing spark, intangible, yet as evident as the lightning—the warrior soul.

There is no better illustration of the potency of this vitalizing element than is portrayed in the story of the "Maid of Orleans." For more than ninety years prior to her advent, the armies of France had suffered almost continuous defeat at the hands of their British opponents. The reason for this state of things lay not in the inferiority of French valor, but in the reappearance of the foot soldier armed with the missile weapon—the long bow—as the temporary dominating influence on the battlefield. As a result of the recurrence of this tactical condition, France suffered almost continuous defeats, with the result that her people lost confidence, and developed an inferiority complex. Then came Joan, whose flaming faith in her heaven-sent mission rekindled the national spirit. Yet, great as were her powers, it is idle to suppose that, all unschooled in war as she was, she could have directed unaided the energy she produced. Like the fire beneath the boiler, she produced the steam; and ready to her hand she found competent machinery for its utilization in the shape of those veteran soldiers, Dunois, La Hire, and Saint Railles. The happy coincidence of her ignorant enthusiasm and their uninspired intelligence produced the phenomenal series of victories which freed France.

We shall now seek to evaluate and place in their just ratio the three essentials to victory—inspiration, knowledge, and force (mass).

Napoleon won many battles with numbers inferior



Petain Receives the Marshal's Baton. "Many Are Called But Few Are Chosen."

to the enemy; he never lost a battle when he was numerically superior. In other words, even his transcendent ability was not equal, on every occasion, to the task of counterbalancing numerical inferiority. When he was confronted with the admittedly incapable Austrian generals of 1796 he destroyed armies; while later, particularly after 1805, his victories were far less overhelming. So with Caesar. Against the Nervae, he was a consuming flame; against Romans, a successful contender. Grant in the Wilderness was as nothing compared to Grant at Donaldson or before Vicksburg. Here we have three soldiers of the highest type, both mentally and spiritually. By way of contrast we may note how the learned but uninspired Prussians of 1870 triumphed over the poorly led French, while in 1914 their equally learned and uninspired descendents were far less successful in the face of better opposition.

We may therefore postulate that no one element —soul, knowledge, or mass—is dominant; that a combination of any two of these factors gives a strong presumption of success over an adversary who relies on one alone, while the three combined are practically invincible against combinations of any other two. Comparing our own resources as to mass with those of any possible opponent or group of opponents, we strike at least a balance. The demonstrated ability of our trained leaders in past wars shows that so far as education is concerned, our officers have no superiors and few equals. This being so, victory will fly to or desert our standards in exact proportion to the presence or absence, in our leaders of the third attribute.

War is conflict; fighting is an elemental exposition of the age-old effort to survive. It is the cold glitter of the attacker's eye, not the point of the questing bayonet, that breaks the line. It is the fierce determination of the driver to close with the enemy, not the mechanical perfection of the tank, that conquers the trench. It is the cataclysmic ecstacy of conflict in the flier, not the perfection of his machine gun, which drops the enemy in flaming ruin. Yet volumes are devoted to armament; pages to inspiration.

Since the necessary limitations of map problems inhibit the student from considering the effects of hunger, emotion, personality, fatigue, leadership, and many other imponderable yet vital factors, he first neglects and then forgets them. Obsessed with admiration for the intelligence which history has ascribed to past leaders, he forgets the inseparable connection between plans, the flower of the intellect, and execution, the fruit of the soul. Hooker's plan at Chancellorsville was masterly, its execution cost him the battle. The converse was true at Marengo. The historian, through lack of experience and consequent appreciation of the inspirational qualities of generals, fails to stress them, but he does emphasize their mental gifts, which, since he shares, he values. The student blindly follows, and hugging the notion of mentality, pictures armies of insensate pawns moving with the precision of machines and the rapidity of light, guided in their intricate and resistless evolutions over the battlefield by the cold effulgence of his emotionless cerebrations as transmitted to them by wire and radio through the inspiring medium of code messages. He further assumes that superhuman intelligence will translate those somber sentences into words of fire which will electrify his chessmen into frenzied heroes who, heedless of danger, will dauntlessly translate the still-born infants of his brain into deeds.

Was it so that Caesar rallied the Twelfth Legion? Could the trackless ether have conveyed to his soldiers the inspiration that Napoleon imparted by his ubiquitous presence when before Rivoli he rode five horses to death, "To see everything himself?" Staff systems and mechanical communications are valuable, but above and beyond them must be the commander; not as a disembodied brain linked to his men by lines of wire and waves of ether, but as a living presence, an all-pervading, visible personality. The unleavened bread of knowledge will sustain life but it is dull fare unless seasoned by the yeast of personality. Could seamanship and shooting have made the Bon Homme Richard prevail over the Serapis or have destroyed the French fleet in Abukar Bay, had Paul Jones and

Horatio Nelson been other than they were? What intellectual ghost replete with strategem could have inspired men as did these two, who in themselves have epitomized not only knowledge of war but the spirit of battle? In defining the changeless characteristics of war we mentioned force, place, and time. In our calendar of warriors, Napoleon Bonaparte and Stonewall Jackson stand preeminent in their use of the last of these—time. Of the first his soldiers boasted: "He wins battles more with our legs than with our bayonets," while Jackson's men proudly called themselves "Old Jack's foot cavalry."

Shrewd critics have assigned military success to all manner of things—tactics, shape of frontiers, speed, happily placed rivers, mountains or woods, intellectual ability, or the use of artillery. All in a measure true, but none vital. The secret lies in the inspiring spirit which lifted weary footsore men out of themselves and made them march forgetful of agony, as did Messena's division after Rivoli and Jackson's at Winchester. No words ever imagined could have produced such prodigies of endurance as did the sight of the boy general, ill, perched on his sweating horse, or of the stern puritan plodding ever before them on Little Sorrel. The ability to produce endurance is but an instance of that same martial soul which arouses in its followers that resistless emotion defined as *élan*, the will to victory. However defined, it is akin to that almost cataleptic burst of physical and mental exuberance shown by the athlete when he breaks a record or plunges through the tacklers, and by the author or artist in the creation of a masterpiece. The difference is that in the athlete or the artist the ebullition is auto-stimulated, while with an army it is the result of external impetus—leadership.

In considering war we must avoid that adoration of the material as exemplified by scientists who deny the existence of aught they cannot cut or weigh. In war tomorrow we shall be dealing with men subject to the same emotions as were the soldiers of Alexander; with men but little changed for better or for worse from the starving shoeless Frenchmen of the Italian campaign; with men similar, save in their arms, to those whom the inspiring powers of a Greek or a Corsican changed at a breath to bands of heroes, all-enduring and all-capable.

No! History as written and read does not divulge the source of leadership. Hence its study often induces us to forget its potency. As a mirror shows us not ourselves but our reflection, so it is with the soul and with leadership; we know them but by the acts they inspire or the results they achieve. Like begets like; in the armies of the great we seek the reflection of themselves and we find Self-confidence, Enthusiasm, Abnegation of Self, Loyalty, and Courage.

Resolution, no matter how adamant, mated to knowledge, no matter how infinite, never begat such a progeny. Such offspring arises only from blood lines as elemental as themselves. The leader must be incarnate of them.

The suggestion of Nicodemus as to rebirth (John III 3 to 6) is not the only means of producing such a leader. There are certainly born leaders, but the soldier may also overcome his natal defects by unremitting effort and practice. Self-confidence of the right sort as differentiated from bumptious presumption based on ignorance, is the result of proved ability, the sense of conscious achievement. Its existence presupposes enthusiasm, for without this quality no one could endure the travail of acquiring self-confidence. The enthusiasm which permits the toil and promises the achievement is simply an all-absorbing preoccupation in the profession elected. Endurance too is linked with self-confidence. Mentally it is the ability to subvert the means to the end, to hitch the wagon to a star and to attain it. Physically it presupposes sufficient enthusiasm to force on nature, no matter how reluctant, the obligation of constant bodily fitness through exercise. The expanding waist line means the contracting heart line; witness Napoleon at and after Jena. Abnegation of self seems perhaps incongruous when applied to such selfish persons as Frederick or Napoleon, but this is not the case. Self can be subordinated to self. The Corsican, leading his grenadiers at Lodi, subordinated the life of Bonaparte to the glory of Napoleon. Loyalty is frequently only considered as faithfulness from the bottom up. It has another and equally important application, that is from the top down. One of the most frequently noted characteristics of the great who remained great is unforgetfulness of, loyalty to their subordinates. It is this characteristic which binds with hoops of iron their juniors to them. A man who is truly and unselfishly loyal to his superiors is of necessity so to his juniors, and they to him.

Courage, moral and physical, is almost a synonym of all the foregoing traits. It fosters the resolution to combat and cherishes the ability to assume responsibility be it for successes or failures. No Bayard ever showed more of it than did Lee after Gettysburg.

But as with the Biblical candle, these traits are of no military value if concealed. A man of diffident manner will never inspire confidence. A cold reserve cannot beget enthusiasm, and so with the others there must be an outward and visible sign of the inward and spiritual grace.

It then appears that the leader must be an actor, and such is the fact. But with him, as with his bewigged compeer, he is unconvincing unless he lives his part.

Can men then acquire and demonstrate these characteristics? The answer is they have—they can. For "As a man thinketh so is he." The fixed determination to acquire the warrior soul, and having acquired it, to conquer or perish with honor, is the secret of success in war.

Border Cavalry Stations

In the October JOURNAL, *articles descriptive of the Cavalry posts at Fort Brown, Fort Ringgold and Fort Clark appeared.*

In many ways the border posts are becoming recognized as the most desirable Cavalry stations under present conditions. It is hoped that these short descriptions will be of interest and assistance to officers contemplating border service.—EDITOR.

Fort D. A. Russell, Marfa, Texas

FORT D. A. Russell, Texas, located in the outskirts of Marfa, Texas, the county seat of Presidio County, in the heart of the Big Bend of Texas, is one of the most attractive of the Border posts along the southern boundary of the United States. Placed as it is in the southern end of the Davis Mountains, with an altitude of 4750 feet, the climate is dry and at night always cool.

Fort D. A. Russell is now benefiting and has hopes of much further improvement by the Army Housing Program. Steam heating by the Arcola system and electric ranges for all officers' quarters have been ordered installed by October 30, 1930. Talking pictures have been placed in the Post Moving Picture Theatre and the Fort D. A. Russell Circulating Library contains all the latest works of fiction.

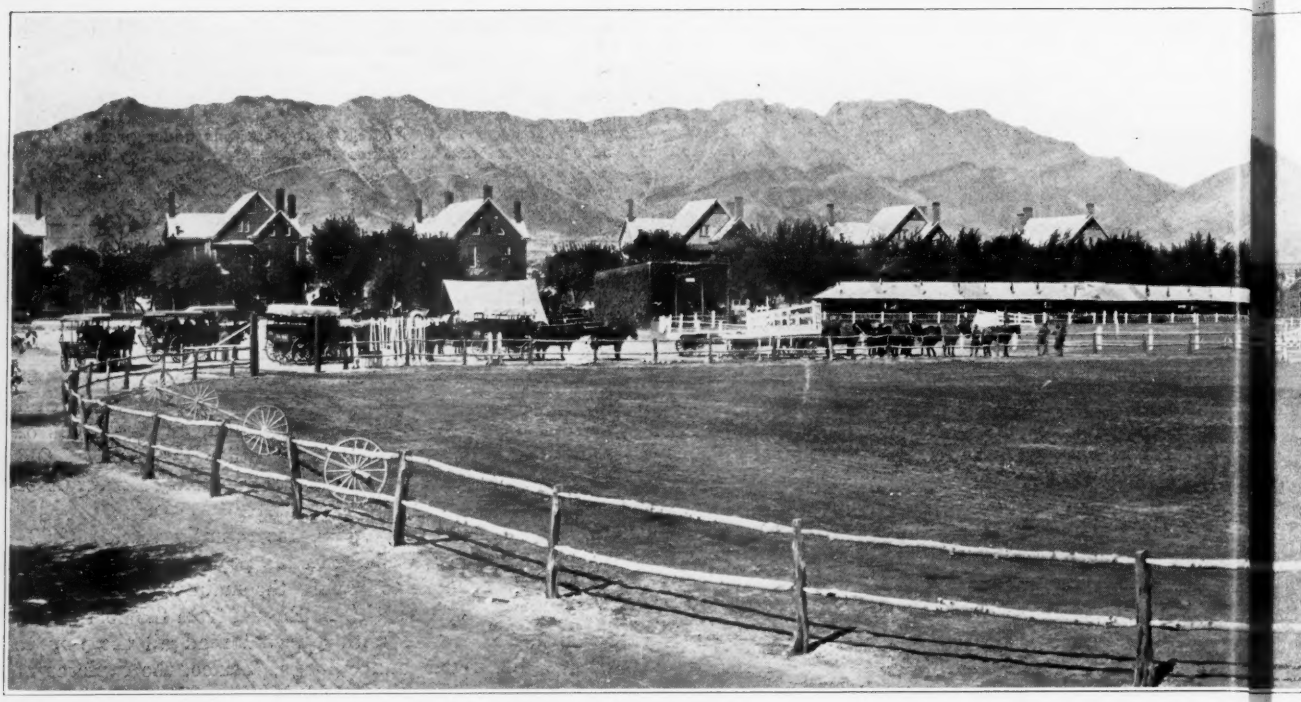
For athletics the Post has two polo fields, a baseball diamond, a football gridiron, basket ball and tennis courts, a horse show ring and an excellent swimming pool. The remarkable climate makes it possible for all sports to be continued throughout the entire year. The post has a baseball league, a basketball league, and two polo teams from the First Cavalry participate yearly in the First Cavalry Division Polo Tournament and in several local tournaments. Each year the First Cavalry sends a horse show team to compete in the First Cavalry Division Horse Show at Fort Bliss, Texas.

The sportsman will find Fort D. A. Russell in the center of an ideal hunting country. Ducks, quail and doves are numerous close to the post, and in season a limit bag may be obtained within easy driving distance from the reservation. There are many deer in the mountains between Fort D. A. Russell and the Rio Grande River, and in the fall of 1929 a hunting expedition from the Post ventured into Old Mexico under the expert care of the military commander and the mayor of Ojinaga, Mexico, and guided by a band of Yaqui Indians. This party was unable to transport all of the game which it brought down, but the heads of deer and antelope, the latter still fair game in Old Mexico, adorn several officers' quarters as a result of this foray.

Presidio County, Texas, has recently voted a $400,000 bond issue which, with the State and Federal aid, is to be devoted to paving the main arteries leading into Marfa and Fort D. A. Russell from the north, east, south and west. With a paved road all the way to Presidio, Texas, and Ojinaga, Mexico, the explorer of the many delights of Old Mexico will find his road made smooth for him.

It is impossible for a soldier to consider living conditions at any station without considering those affecting the practice of his profession. At Fort D. A. Russell they are ideal. A very long summer with very little inclement weather and four months of mild winter with about one or two snow storms a year makes it possible to carry out the training of troops and all the incidental details throughout the entire year. The many dirt roads leading from Fort D. A. Russell and the lack of traffic on these roads make practice marches a delight to an officer accustomed to conducting them in a more settled country.

Birdseye View of Fort D. A. Russell, Texas—Post Hospital and Officers' Line in the Foreground



Howze Stadium and Olympic

Fort Bliss, El Paso, Texas

FROM two abode huts on the Rio Grande, where Ponce de Leon once paused in his quest for youth, there has sprung a border fort with a reservation scattered over 6,000 acres and with quarters and barracks for 5,000 officers and men. The history of this border post—Fort Bliss—since the earliest times has been inseparably identified with the developments of El Paso, the gateway of the Southwest, a city of 125,000, where army men are made to feel at home.

A great place to soldier, Fort Bliss, the home of the First Cavalry Division (less the First Cavalry Brigade), that's the consensus of opinion of officers, and men who have been so fortunate as to serve a tour of duty there.

Let's picture this post:

Winding out a modern highway from El Paso (its business section only five miles away) Fort Bliss looms up impressively on a rolling mesa. Approaching the south gate, the year-around splendidly turfed polo field is reflected in the sun.

On through the gate one halts to decide which green shadowed, tree-flanked, road to follow—there are twelve miles of them. To the left and right runs Sheridan road, its left course passing the long row of two story sets of quarters of the Commanding General, his staff and ranking officers. Bordered with evergreen hedges, they rise sheer out of a cluster of locust and mountain cottonwoods, while across the parade ground stretches gracefully an unbroken chain of Spanish type barracks.

Setting off the parade ground is Howze stadium and the Olympic jumping ring, home of the El Paso Fort Bliss Horse Show. With the horse show over it serves as a playground for post children.

Circling the parade ground, with its bandstand and flag pole in the center, one finds himself on Pershing road. He passes the post theater—a modern talkie palace, advertising the latest from Hollywood. Thence down into the heart of the Seventh Cavalry area, the low rambling bungalow officers' quarters facing Sheridan road on the right and the cantonment buildings of the enlisted men to the left.

Back over Pershing road, the modern brick bungalows for non-com's of the first three grades, past brigade and division headquarters, buildings forty-seven years old, and into the homeland of the Eighty-second Field Artillery which resembles the Seventh Cavalry area.

Of the permanent officers' quarters there are forty: fifteen of the two story type and twenty-five bungalows. There are fifty-one temporary sets of frame quarters.

For the hunter, Fort Bliss is an ideal post. There is an abundance of duck, quail and doves within a radius of twenty-five miles. Deer are found near Sierra Blanca, eighty miles to the east. The fishermen fish the Rio Grande, east of El Paso and at Elephant Butte Dam, west in New Mexico.

For the mounted sportsman El Paso is on an assured polo footing, and the First Cavalry Division's annual polo tournaments draw military and civilian teams from all the southwest. Also there's the El Paso-Fort Bliss Horse Show rapidly advancing and which it is predicted soon will equal long established eastern shows. Those socially inclined find the Officers' Club hops pleasant entertainment. There is an excellent mess at the club. Visiting officers are accommodated in

Olympping Ring, Fort Bliss, Texas

modern quarters at the club's guest house. Adjoining the club is a swimming pool. Flying military men in El Paso for the night land at Biggs field where their ships are serviced.

The division maintains a vacation camp at Cloudcroft, New Mexico, in the Lincoln National Forest in the Sacramento Mountains, 160 miles from Fort Bliss. Nine thousand feet above sea level there are forty log cabins in the heart of a dense pine grove. Golf, tennis and fishing provide diversion.

Fort Bliss, high, mild, pleasant and healthful is truly a great border post.

Fort Huachuca, Arizona

FORT Huachuca was established back in the days when the Apache Indians divided their time between looting and murdering the widely separated ranchers, and making a quick and quite complete vanishing act into Old Mexico. Some of the original adobe barracks and quarters of this early period stand today. To a person of contemplative mind and gifted with imagination it is pleasant to stroll in the late evening past the old Post trader's building and hear the sound of Pre-Volsteadian revelry coming thru its dilapidated doors and windows.

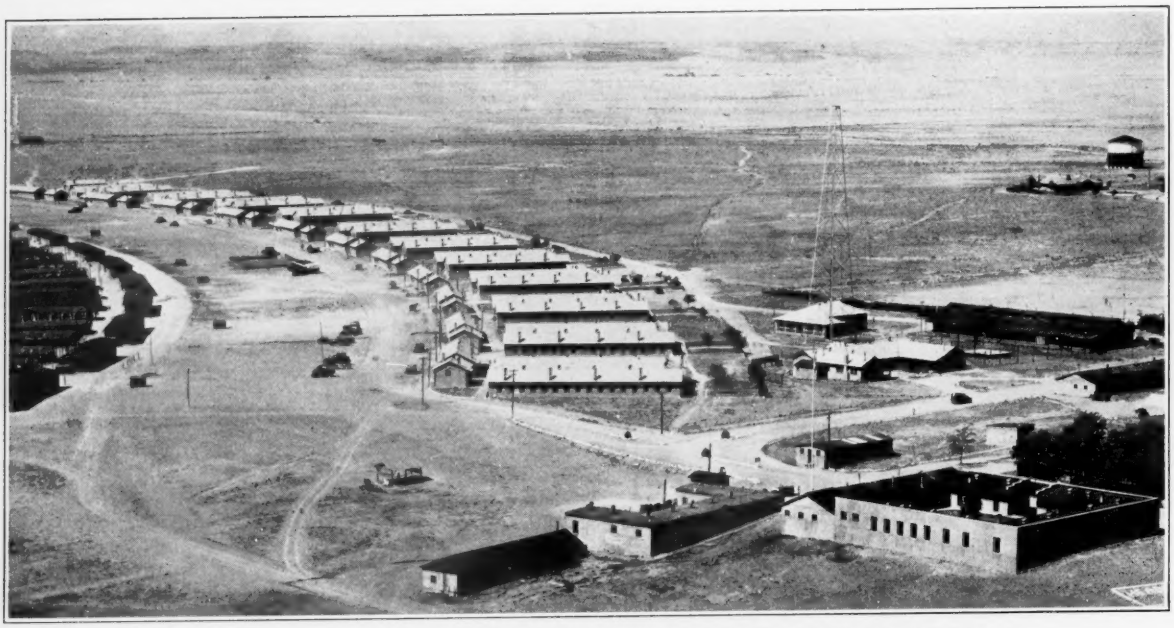
After a long period of complete isolation an enterprising railroad, seeking its way from the main line to Nogales, passed within seven miles of the post. Old timers will recall the Huachuca Siding at this point, for years the only outlet to the outside world. It was reached in the conventional way on the old army Daugherty wagon, drawn by four mules. Now we have a railroad into the post, connecting with the main line at Lewis Springs, thirteen miles away. Our train makes the trip to Lewis Springs daily and is popularly known as the Galloping Goose.

The present garrison consists of the 10th Cavalry and a battalion of the 25th Infantry, with the usual detachments. Prior to the peaceful penetration of the Infantry into our midst, Fort Huachuca had, since 1914, been known as the home of the 10th Cavalry, the Buffalo Regiment. The Infantry has however made its way here and is now a welcome and harmonious addition to the post.

The barracks are two-storied frame buildings and are, according to our genial Quartermaster, in a constant state of being repaired. The stables are open frame buildings suitable to this climate.

The officers' line is shaped like a huge dipping ladle, the new quarters, or the loop, being the bowl. Eleven sets of the old adobe quarters remain and are reserved for field officers. They are large, comfortable, old-fashioned, haunted by memories of the past, and very attractive. The new quarters are duplicate frame buildings, designed for captains and lieutenants. The line is adorned with a rather fine double row of cottonwood trees—the ideal and universal shade tree of this section. In addition, a large number of fruit trees furnish an abundant supply of peaches, pears, apples, plums, quince, crab apple, nectarines and pomegranates. I have been told that the larger number of these trees were presented by a moving picture company that "worked" this site some years ago.

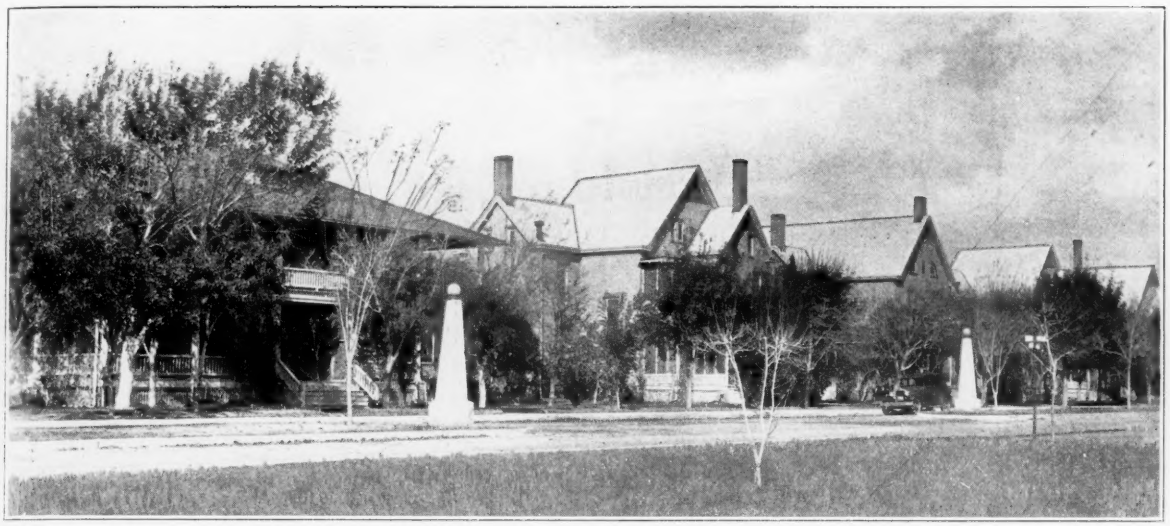
The water supply is piped from the Huachuca Mountains and is of good quality and abundant, ex-



Post Headquarters, Fort D. A. Russell, Texas, with Troop Barracks in the Background

FORT HUACHUCA, ARIZONA

Officers' Quarters on the Left; Barracks, Center and Stables, Right



Commanding General's (left) and Staff Officers' Quarters, Fort Bliss, Texas

cept in the driest months. The government is now drilling wells in Garden Canyon to augment the supply and take care of any possible concentration of troops at this place.

The post maintains its own power and ice plant and the quarters are equipped with electric cooking stoves. The field officers' quarters have been supplied with the new furniture.

The Post Exchange, in addition to its merchandise department, operates a butcher shop, a vegetable market and a dairy farm, which furnishes an ample supply of good milk for the post. There are the usual concessions, a restaurant, a tailor shop, a cobbler's shop and a barber shop.

Cochise County maintains in the post a separate school for colored and white pupils, with a primary department and an accredited high school for each race. There is also a private kindergarten for the little fellows.

The post, bathed in the sunshine of high altitude and washed by clean mountain air, is a wonderful place for babies and smaller children. A year or two in this climate should equip them with a physical stamina and vigor sufficient to last them a life-time.

The post has one of the best equipped and most efficiently administered post hospitals in the army. There are no members of the Army Nurse Corps assigned to this station, however, and that is a need that is particularly important in an isolated station. This need has been called to the attention of higher authorities and should receive their earnest consideration.

There is a well-equipped Officers' Club which provides a meeting place and various amusements for officers and their families. Fort Huachuca is one of the few remaining posts whose very isolation makes the garrison more homogeneous and independent of outside civilian contacts and amusements. The result is a garrison life clearly reminiscent of the old days of the army.

The trails in the mountain canyons offer good riding, and adventure for the adventurous. We have tennis courts, an outside swimming pool, a horse show ring and a polo field. Years ago the most optimistic man in the world started a golf course, but it has gone the way of Nineveh and Tyre and Tombstone.

The Buffalo Club furnishes the enlisted men recreation and amusement and is well-equipped for the purpose. The War Department maintains a theatre in the post, recently equipped with the talkies. The entertainment furnished is of a high order.

Tombstone, famous as the Eldorado of the Far West, is only twenty-seven miles away. Its glory has departed however, and its almost empty streets echo only to the foot-steps of its departed desperadoes. It has much interest to those who can recreate in their minds these shadows of the past.

The 5050 foot contour passes thru Post Headquarters and there are quarters in the post even higher. The winters are short and mild, the thermometer seldom reaching the freezing point. Snow is rare except in the mountains. It is not hot in the summer and the nights are cool and invigorating.

It is difficult to really picture this country to one who has never seen it or has only seen it in passing thru. It has fascination; it has glamour; but it only reveals itself fully to those who live with it.

To one from the effete East the first impression must be rather appalling. There are nine mountain ranges visible from the post. The distances are immense and brooding. The purple mountains against the sky appear for all the world like the back-drop of a huge stage.

The Huachuca Mountains rise in our back yard and shut off the view to the south; but to the north one over-looks the greater part of Arizona. In the late afternoons, the mountains take on magic, and the colors are quite unreasonable. If a buffalo or a giant Indian should gallop out on the sky line, dwarfing the mountains, it would not seem surprising. In such an atmosphere anything seems possible.

The Gallop as a Conditioning Gait

The following article on conditioning horses for military use and sporting events has been prepared by the Department of Horsemanship, The Cavalry School.—EDITOR.

THE gallop is the most rapid of the gaits. Its mechanism and speed exact the greatest expenditure of muscle and wind. It is this latter fact that makes the gallop the most important of the gaits from a *conditioning* standpoint. It is also the combat gait and the gait for rapid maneuver, therefore all military horses should be able to sustain the extended gallop for a distance of from 3,000 to 4,000 yards.

For young horses to be able to take their place in ranks at the earliest possible moment, in case of emergency, and for their physical development, it is necessary that they be galloped early in their training. The objective should be a gallop of 1,500 to 2,000 yards in 5 to 6 minutes at the end of four months' work: A gallop of 3,000 yards in 7 to 8 minutes at the end of the year's work. Many well-bred horses will be able easily to exceed this distance and time, while many cold-blooded horses will find it difficult to attain.

Special Cases.

In race track parlance *training* is synonymous with *conditioning*. In conditioning it is well to remember, "walk for muscle and gallop for wind." This excludes the trot as a *conditioning* gait without affecting its invaluable qualities as a military gait and as a gymnastic for the horse. Hereinafter the gallop will mean the *run at top speed*.

The successive steps in conditioning for special purposes, such as the Equestrian Championship ("Championnat Equestre"), flat and steeplechase races, etc., are:

First: Put the horse in health.

Second: Put the horse in muscle. (Long walks outside, slopes, long slow, swinging canters.)

Third: Put the horse in wind. (Gallops.)

In the above steps the first and second are no different from the conditioning of a horse for any military purpose and are of general knowledge. It may be said, however, that the vigilance of the trainer should be increased in proportion to the severity of the test in view.

When the horse has an excellent appetite, eyes clear, skin loose and resilient, feels "high," well-muscled and more than a little fat, he is ready to be galloped.

The following rules are applicable to military horses:

(a) Select good ground and, if possible, always use the same ground. This is an aid in preventing the horse from becoming a puller when hacking.

(b) Work horses in pairs—never gallop a horse alone if possible.

(c) Rotate the pairs so that certain individuals will not be consistently beaten.

(d) If pointing for a race, school daily at the barrier—a second saved in starting means distance at the finish.

(e) Gallop always with a lighter weight than the horse will carry in the test. He will become confirmed in striding a certain length and in a certain tempo and will make every effort to attain his stride when weighted in the race.

(f) Gallop the distance selected at stop speed and avoid pulling up sharply. A running horse will allow the gait to die out if the reins are relaxed.

(g) If possible, mount the horse each time with the rider he will carry in the test. It increases the horse's confidence as well as keeping the rider's judgment as to pace and peculiarities of his mount.

The horse should *never* be galloped in training the full distance of the test. The maximum effort that a horse can make on a flat is 1¼ miles. If the distance exceeds that, it becomes an endurance test and the maximum speed must be reduced accordingly. The maximum distance a horse should be galloped in training for 1¼ miles should not exceed ¾ mile. This distance is also the maximum when training for steeplechases on cross countries even where the distance will be 4 miles or better, although 1½ to 2 miles, well extended but not at top speed *(demi-train)* over obstacles once in a long while, will not be injurious.

In starting the work for wind the gallops should be short, one-eighth of a mile twice a week at first. Increase this to three times a week. Later increased to one-fourth mile twice a week, then three times a week and so on to the maximum. The schedule should be so arranged that the horse is brought to the maximum about a week or ten days before the test. He should be galloped the training maximum only three or four times, then let down at least two days before the test to leading and short canters in order to keep the muscles supple.

The days on which the horse is not galloped should be devoted to long walks in hand, or, if the horse needs further work in dressage, he can be worked mounted. The only provision is never to tire him on his off days but allow him full opportunity to recuperate.

Sample Schedule for Conditioning.

A sample schedule for conditioning a horse for a steeplechase is here offered as a guide solely, as the work given any individual depends upon the individual, his condition, and the particular event for which he is being trained:

For the first week and each succeeding week during which the distance is increased:

Monday: —Long walk over slopes in hand.
Tuesday: —Gallop.
Wednesday:—Long walk in hand.

Thursday: —Walk and canter.
Friday: —Gallop.
Saturday: —Long walk in hand.
Sunday: —Rest.

For weeks in which distance is not increased:

Monday: —Gallop.
Tuesday: —Long walk in hand.
Wednesday: —Gallop.
Thursday: —Long walk in hand.
Friday: —Gallop.
Saturday: —Walk and canter.
Sunday: —Rest.

The above is merely a guide and should not be considered an absolute rule. There is no absolute rule with horses. Each individual must be carefully considered and work increased or decreased according to his physical state or temperament. If the horse shows signs of rounding into top condition too early, work must be decreased to avoid the possibility of his going stale.

In conditioning for the Equestrian Championship ("Championnat Equestre") the foregoing schedules are also applicable. The distance galloped should rarely exceed ½ mile. The off days can be used in perfecting the horse's schooling and jumping. However, in working a horse for this event, every effort should be made to complete his education in these two latter requirements sufficiently early to have the period of gallops for wind as free as possible, giving him only enough schooling and jumping to keep his memory fresh.

For horses with uncertain feet or legs, where the facilities are available, swimming can be substituted for gallops. The resistance offered to breathing, by the pressure of water against the lungs, develops the wind while the resistance offered by the water to the forward and back play of the horses' legs develops the galloping muscles. A swim of 150 to 200 yards is analogous to a half-mile gallop. Swimming is a satisfactory substitute for galloping, but is not by any means as effective, and should only be used in place of the gallop when absolutely necessary.

The Philippines

Major Vicente Lim, 45th Infantry (Philippine Scouts)

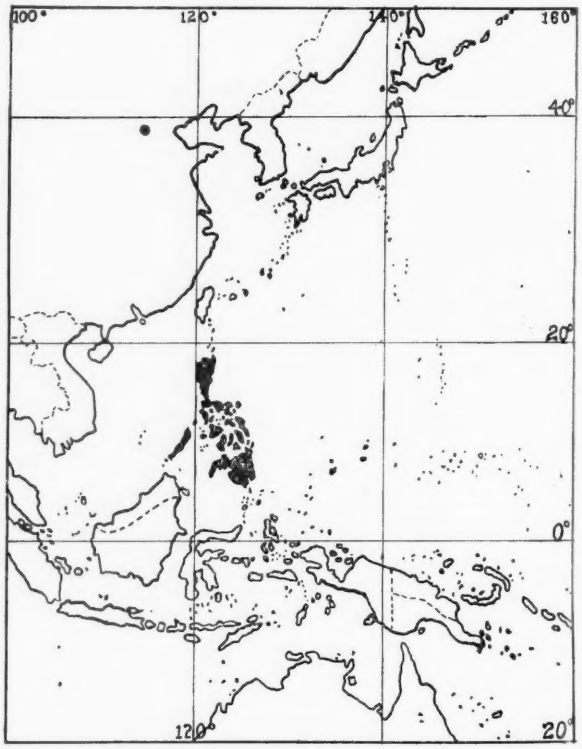
NOW-A-DAYS when commercial expansion is of paramount interest to the first power nations, countries of sparse population and still untouched natural resources have assumed special interest. These "industrial vacuums," as Dr. Bond so aptly termed them, are too few for the countries that need them; hence the increased demand for them.

Tucked in between the Pacific and the China Sea is such an "industrial vacuum" commonly called the Philippine Islands. Peopled by Malayans with a mixture of Chinese or Spanish blood, the archipelago has been constantly under the influence of a stronger power.

The history of the Philippines is full of struggles to be free from bondage, always unsuccessful but never completely repressed. For more than three hundred years the Spaniards ruled the archipelago, implanting the Catholic religion in all the islands except Mindanao. Church and State were very closely united, and by the 19th Century the Church had become so powerful that the Archbishop of Manila was the real ruler in the islands, and the Governor General but a figure-head. On account of this increased temporal power and the vast estates acquired by religious corporations, the missionaries who at first were the protectors and educators of the Filipino people were changed into opponents of their progress and enlightenment, because of extreme conservatism and the fear of loosening the ties that bound the Filipinos to the Church and Spain. As a result there was a widespread revolution in 1896. It was then that Emilio Aguinaldo became the leader of the Filipinos. Unable to cope successfully with the situation by means of arms, Primo De Rivera, recently Dictator of Spain, entered with Aguinaldo and the other Filipino leaders into a compromise which left matters in a state of suspended animation until the United States declared war against Spain in 1898.

One bright May morning the battle of Manila Bay gave victory to Commodore Dewey, who immediately blockaded the city of Manila. Far from his base, with no army to support him, Dewey gave 30,000 rifles to Aguinaldo, to whom he had furnished transportation from Singapore through the mediation of the American consul in that city. Aguinaldo persuaded the Filipinos to fight with the Americans, as he said the great American Commodore had promised him the independence of the Philippines. This was later denied by Dewey in the congressional investigation. During the blockade, and while the American soldiers were on the way, the Filipinos were conquering the small Spanish posts all over the islands. When the first contingent of 10,000 American soldiers arrived, only the city of Manila remained under the Spanish flag, and it was besieged by the Filipinos who were aided by Admiral Dewey.

The arrival of the American Army under the command of General Merritt, with definite instructions from the President, changed this relationship of mutual helpfulness to watchful suspicions. After the surrender of Manila, in order to minimize the possibility of friction, the Filipino forces were told to keep out of the city limits, and thus, Americans within and Filipinos without, the two forces faced each other for five months of increasing friction. Finally hostilities broke out in what is known as the Philippine Insurrection, which lasted until 1901. With that unsuccessful



struggle still fresh in their minds, the Filipinos thrill at the thought of immediate and absolute independence.

An observer with eyes only for external features would be right in saying that surely the Filipinos should be thankful to be under the American flag. During the 28 years of American tutelage, the islands have undergone an almost incredible transformation. In government, Filipino participation has been increased so that at present only the governor general, the vice governor, several judges in the supreme court and courts of first instance, and a few bureau chiefs, are Americans. The Philippine legislature and all the provincial and municipal authorities are composed of Filipinos. The influence of the efforts of the United

States to establish self government in the Philippines has extended far beyond the limits of the archipelago. It has reached every part of Asia, where the people dream of free institutions and representative government; it has brought hope and inspiration to millions of subjugated natives, who see in these new ideas a promise for the future; it has shaken seriously the colonial offices of European countries. Indeed no news of the Philippines and its development was allowed to appear in any periodical in the colonies; yet news of the beneficent innovations filtered through India, Malaysia, and even in Asia Minor. Representative Hindus say that the Indian movement for home rule has been largely due to American policy in the Philippines; the pressure of native opinion in Java, Ceylon, and Indo-China, which has led to native participation in government in those colonies, sprang largely from the same source. Mr. Charles Crane, in his report on his mission for the United States to Asia Minor in 1918, states that he found everywhere an eagerness that the United States should accept a mandate for those people in order that the Americans might do for them what had been done for the Filipinos. The Chinese, too, say that their belief in the honor and unselfishness of America is due largely to the Philippine policy.

In education, progress has been almost incredible. Almost before the sound of musketry had ceased, schools were established in which the erst-while antagonists were the teachers, and the children of the insurrectos were eager pupils. In a few years the system of education, patterned after the American system, was in full force. It has been so successful that now English is spoken throughout the islands and it is estimated that more than 2,000,000 Filipinos, or 20 per cent, speak English now whereas after the three centuries of Spanish rule only 7 per cent spoke Spanish. The public school system extends from the primary school in every small *barrio* or district to the University of the Philippines. The principle that underlies this system is that popular education is the life of a nation, a principle for which Rizal, the greatest Filipino patriot, worked and died. Fully 27 per cent of the Philippine revenue is devoted to public education, yet every year there are more pupils than can be accommodated in the schools. Just as the greatest legacy of Spain to the Filipino is Christianity, so America's greatest contribution to his civilization is the diffusion of the English language and American ideals in the Islands.

The great increase of school attendance is due to the fact that more children are finding an opportunity to go to school than ever before, on account of the growth of commerce and industry brought about by improved conditions of transportation, finance, public order, and the opening of markets. Statistics show that from 1909, when the Payne Bill established free trade between the United States and the Philippines, the gross trade of the Philippines nearly doubled for the first three years, and went on increasing until in 1920 it reached the remarkable total of $300,000,000.

If the savings of the people can be taken as an index to their prosperity, figures of the postal savings bank established in 1907 will be most interesting. By 1913 it had 40,000 depositors and more than $1,500,000 on deposit; in 1920 there were 107,000 depositors and the deposits totalled about $4,000,000.

But the advantages have not been wholly on the side of the Philippine Islands. I have heard it said that the Islands have been and are still a source of expense to this country and a weakness to its national defense. This is far from being true. The great expense incident to the American occupation and Philippine Insurrection was the logical outcome of the Spanish-American War; therefore it can not properly be placed as a debit against the Philippine Islands. After peace was established, all expenses of the insular government were paid from local revenues, and the only direct expense of the United States has been the cost of maintaining of a portion of the Army and the Navy in the Islands, and in building island defenses. But even if the Philippines were eliminated, the Navy could not be decreased, because of our extended coast line, the Panama Canal, and possessions in the Pacific such as Alaska, Hawaii, and Guam.

The University of the Philippines at Manila. Evidence of the American Influence.

Possession of the Philippines awakened the interest of the American people in the Orient, and subsequently led them to take advantage of its tremendous opportunities. Thus American trade has rapidly expanded in the Pacific. In the Philippines alone, American trade increased from less than $6,000,000 in 1895 to more than $171,000,000 in 1926. While in 1900 only 5 per cent of the total trade of the United States was with the Orient, it increased to 21 per cent in 1923.

With the coming of the American flag to the Philippines, the United States was compelled to think and act in terms of an Asiatic power. As such it promulgated the Open Door policy, which not only halted the impending partition of China but also gave the United States a place of commanding influence in the destiny of the Pacific. The European powers had for centuries been intrenching themselves in the East to secure its trade. England had Singapore, Hong-Kong,

and Kowloon; France, through its hold on Indo-China, controlled Saigon and Haiphong and the provinces of Kwantung, Kwangsi, and Yunan; Germany had the Bay of Kiaochow; Russia had Dalny, Port Arthur, and the province of Liaotung Peninsula; Portugal held Macao; and Japan secured Formosa and Korea. With the Boxer uprising in 1900 these powers would have had ample excuse to partition China exclusively among themselves, but the United States, through the presence of American troops in the Philippines, was able to rush two regiments of infantry to the scene and thus take active part and voice in the settlement of affairs. This resulted in what is known as the principle of Territorial Integrity of China, which became linked thereafter with the Open Door policy. Without these master strokes of American diplomacy, made possible by the presence of American forces in the Philippines, this country would have lost in the race for trade supremacy in the Pacific; and China would no longer be a nation, but a group of possessions.

The Philippines are therefore of great interest to European powers and the preservation of their colonies because these Islands act as a buffer state that prevents the advance of Japan into the Islands of Oceania. The United States, by its possession of the Philippines, holds in her hands the balance of power in the Pacific. In view of these facts the solution of the Philippine problem is mingled with that of the Far East as a whole, and its successful outcome will mean the preservation of peace, not only in the Pacific but also of the world.

Let us now turn our attention to the economic value of the islands of the United States. The tropical position of the Philippines and the great fertility of her soil make its future development of special interest to this country. Continued prosperity in the United States makes the necessities of life more numerous and complicated, and manufacturers are becoming more and more dependent upon tropical products. A partial list of these imported products which enter into American social and industrial life includes sugar and molasses, rubber and gutta percha, vegetable oils, cocoanut and its products, tobacco and its products, fibers of all kinds, cabinet woods, coffee, cocoa, fruits and nuts, gums and resins, spices, quinine, indigo, kapok, wood pulp, dye woods and extracts, pearl shells, sago, rice, sponges, tan bark, and others. The United States consumes more tropical products than any other nation in the world; its annual imports of wood and raw materials from the tropics amount now to more than $2,000,000,000. The Philippines today furnish about $100,000,000 of this import. According to experts, the Philippines can successfully grow all these tropical products and can supply the United States in sufficient quantities to free them from dependence upon foreign countries, with their tariff regulations and restrictions.

Today the Philippines hold a natural monopoly of Manila hemp, which is essential in the manufacture of binder twine and many other rope articles. As one planter expressed it, Mindanao alone could produce enough hemp to bind the entire wheat crop of America. It could also produce almost unlimited quantities of maguey and other fibers. The Islands are among the largest producers of copra and cocoanut oil, so indispensable in many food products. The forest wealth is now 100 years over-ripe, and only awaits cutting in order to supply the world's fast diminishing store of hard woods.

But of all these products rubber is the most interesting. Americans consume 75 per cent of the world supply of rubber. In 1923, when England levied an export tax on rubber grown in her tropical possessions, commodities made out of it went skyrocketing in price, and manufacturers here went frantically in search of lands in which to grow their own rubber. It was then found out by experts that there are 1,500,000 acres of potential rubber land in Mindanao capable of producing 300,000 tons of rubber, or about two-thirds of the annual rubber consumption of the United States.

These facts show the possible economic value of the Philippines to the American people as a source of supply for tropical products. Geographical proximity to China, destined to be the world's greatest market, makes the Islands the best trade base for American products in the east. Lord Northcliff, who visited Manila shortly before his death, said, "The interest of most Americans in the Philippines is sentimental, but the British and Australians know Manila as probably the finest distributing center in the East, not excepting Hong-Kong."

Admiral Hilary P. Jones testified before the Senate in 1924, "The Navy considers that we must possess bases in the Philippines. They are vital to our operations in the western Pacific—thus so vital that I consider their abandonment tantamount to abandonment of our ability to protect our interest in the Far East."

In view of all these facts, we can clearly see that the possession of the Philippines by the United States has resulted in big gain both for Americans and Filipinos. The work of America in the Philippines is one that any nation might be well proud of, an epic of achievement unprecedented in world history. It has meant to the Filipinos peace and security, progress and prosperity, liberty and opportunity. On account of a better standard of living, a happier frame of mind, and a more general prosperity, the present Filipino generation is stronger in constitution, more equable in temperament, and broader in conceptions. To Americans it has meant more business opportunities, a wider sphere of influence, and greater importance as a world power.

It is therefore of paramount importance that the Philippine problem be solved to the satisfaction of both parties. This problem, however, is surrounded by an artificial atmosphere. The good intentions of America are vitiated and misinterpreted by not a few Americans, well intentioned enough, who, when demonstrating that the separation of the Philippines from America would be a calamity to the former, have not been always thoughtful about the self respect and susceptibilities of so sensitive and high spirited a people as the Filipinos. Thus, instead of touching their better nature and enlisting their self interest, they

succeed only in hurting their pride and arousing their passions. Such a course has aided no one but those who find zest in animosity. Distrust replaces confidence. The Filipinos are made to feel the necessity of self defense. Americans are made to appear in the light of foes rather than friends, of condescending masters rather than willing helpers. With so baneful an atmosphere, it is not astonishing that in spite of the Filipinos' deep feeling of appreciation for the blessings America has given them, they have raised a cry against the continued relationship with their benefactors. Several formulas have been presented for the solution of this problem; the three best known being: (1) complete and immediate separation; (2) permanent annexation; and (3) complete local autonomy, with eventual separation. Whatever formula is taken for the solution, it must fulfill three responsibilities: (1) the responsibility of the Filipinos to themselves to keep their country a fit place in which to live; (2) the responsibility of America to the Filipinos to give them a chance to live as a nation in a reasonably safe and satisfactory manner; and, (3) the responsibility of America to herself to make morally sure that her possible withdrawal from the Philippines will not open the way to conflict in the Pacific which might develop into a world conflagration.

Equitation and Sports in European Schools

By Major Norman E. Fiske, Cavalry

IN methods of equitation European Cavalry schools differ widely both in theory and instruction practice. Each has developed its own system, although the influence of one on the other is often apparent. Basically, the difference lies in the wide divergence of opinion as to the proper location on the horse of the center of gravity of the rider's weight. Generally speaking, there are two contradictory ideas on this subject: the one taught in the past by French, German and Austrian riding masters, and now best expressed by the method taught in Germany, and the other, that originated and developed by the Italian school.

The Italian method is based on the argument that the horse in his natural state carries most of his own weight on the forehand, and that any additional weight should be placed on his back proportionately so as to preserve this natural and proper distribution. Since the position of the saddle is necessarily determined by the physiological structure of the horse, the weight of the rider can be displaced far enough forward only by adjusting the stirrups quite short and by keeping the body in a forward position well out over the forehand. In this position the buttocks are out of the saddle at all gaits faster than the walk and the shock between horse and rider is absorbed by the hinges at the waist, knee and ankle. The center of gravity of the rider's weight is high and security of the seat is maintained by the grip of the knees and lower legs.

The German theory on the other hand presupposes that the rider should sit well down into the saddle and keep the center of gravity as low as possible. To this end the stirrups are long and the body held erect. Shock between horse and rider is absorbed by suppleness in the hips or loins, or both, and security of seat is maintained by the low position in the saddle, the flat of the thigh against the saddle skirt, and the clinging of the thigh and buttocks to the saddle. Certain exercises are prescribed to develop the horse and to assist him to readjust himself to the resultant unnatural distribution of weight carried.

Which of these two basic concepts is best adapted to military equitation is still a much discussed question. A military method should provide for:

a Conditioning of the horse, necessitating outdoor work over varied terrain.

b Full control over the horse *with one hand* at all gaits and in all changes of equilibrium.

c A secure seat enabling the rider in any crisis to stay with the horse as long as the latter keeps his feet.

d Distribution of the weight of the rider so as to cause the least possible fatigue and discomfort to the horse without sacrificing control and secure seat.

The Italian method comes nearer to fulfilling these requirements; but though it is ideal for show ring riding it should, for military purposes, be modified, increasing the length of the stirrup to give additional security and greater control over the horse even at the expense of an accurate distribution of weight. This modification, however, is a slight one—in fact the Italian officer himself often makes it when in the field on maneuvers.

A good and satisfactory method for military riding is essential but it is of equal importance to make that method universal in the service so that instruction may be standardized and a large group of capable officer and non-commissioned officer instructors developed who can at mobilization impart this standardized instruction to recruits in minimum time.

While the method of riding taught in each European Cavalry school differs in details, it is true that there is a general trend toward the adoption of Italian ideas. At the present time the Polish school is closest to the Italian. Sweden has adopted the forward seat for all outdoor work, retaining the German position for riding hall exercises and schooling. Spain has evolved a composite seat halfway between the Italian and that taught at Saumur. Germany is actively experimenting with the Italian method but so far it has not found much favor with the older instructors and is not being taught to the students. Belgium and England are not as yet influenced by the Italian ideas.

Mounted Sports and Competitions

Sports and equestrian competitions form an integral part of the program of all the schools and are used extensively as a means of developing riders and of teaching horsemanship. England goes in for sports more than the other schools. The school is in the midst of England's famous fox hunting country and during the season the students and instructors alike hunt almost every day with one or another of the well known hunts that meet within riding distance of the school. Toward the close of the season each hunt has its point to point races in which the officers at the school compete. When the hunting season closes polo begins and continues throughout the summer. The polo played at the school is not of the high goal caliber seen at Hurlingham but it is nevertheless quite good and compares favorably to that at our own school.

Sweden and Germany maintain drag packs and hunt them for instruction purposes. In Sweden the drag courses are especially long and difficult. Poland and Belgium have no fox hounds. In Spain a pack is maintained by the Royal Court and officers of the school may ride, but hunting is not a part of the instruction and only a few of the officers ride habitually.

Racing is popular everywhere except at the German school. In Sweden, Poland, Belgium and Spain the training of steeplechasers is part of the course of instruction. Special military race meetings are held in

these countries and gentlemen's races are often run on the local tracks. British officers ride in the military and hunt point to point races.

Polo is played only in England and Spain. At the latter school it is part of the training for advanced course students. Cavalry officers of other countries are interested in polo on account of its acknowledged military value in training riders and horses but they hesitate to adopt it because of the expense involved. Italy may in the future establish polo as a military sport at Rome, Pinerolo and Udine, the three principal cavalry centers. The plan has been under consideration for some time and steps are being taken to put it into effect.

Equestrian competitions are conducted on the same principles in all of the countries except England. They are of three distinct types, each one differing from our horse shows. American officers have competed in contests of this kind only at the Olympic Games and on certain other occasions when our equestrian team has taken part in competitions in continental Europe. The three types are as follows:

(1) Jumping competition *(concours hippique)* over a long and varied course with time a consideration.

(2) Individual training competition *(concours de dressage individuel)* in the execution of school movements including those of the "haute ecole" such as the passage, pirouette and piaffer.

(3) Equestrian championship *(championat de cheval d'arme)*, sometimes referred to in Olympic competition as the "three day event" because it entails on successive days a schooling phase, a road march and cross country phase and a jumping phase.

The rules for these contests have recently been standardized by the Federation Equestre Internationale. The president of this organization, M. Hector, has recently transmitted copies of the rules to the Chief of Cavalry.* In view of the approaching Olympic Games and the probable continued participation of American teams in these events in Europe, the adoption of the rules *in toto* for our own military competitions would be an idea well worth considering. Our horses and riders would then be trained along the same lines as their foreign competitors and preparation for the Olympic Games would cease to entail unusual effort now necessary on our part. Both the *concours hippique* type of jumping and the equestrian championship event are of much more value in military training than the corresponding hunter, jumper and officers' charger classes usually seen at military horse shows in our country, for they are conducted outdoors at high speed over long courses and over varied obstacles of both height and breadth and they require for success bold riding, complete control of the horse and excellent condition on the part of both horse and rider. Since the competitions are standard and cash prizes are offered, horses may be rated and handicaps imposed on the basis of the amount of winnings. Standardized competitions held annually at our various army centers would attract many competitors and develop many horses and riders.** Competition of this nature would then be available to almost all officers instead of being limited as at present to riders detailed on the Horse Show Team for international competition.

*The Cavalry Association is the American organization holding official membership in the Federation Equestre Internationale. The rules here referred to have been received and on completion of the translation will be published in THE CAVALRY JOURNAL.—EDITOR.

**This plan was followed in the 1st Cavalry Division Horse Show this fall. See account in the "Sports" section of this issue.—EDITOR.

Co-Ordination of the Attack

Major-General J. F. C. Fuller, British Army

AS a brigadier it occurred to me one day, after the close of the collective training season of 1930, to consider what I had found to be the weakest link in the harness of my regimental officers. I soon came to the conclusion that it was planning, and more particularly planning in the attack, which to-day includes so many uncertain factors—increased fire power, new arms and imaginary ones. I feel that as regards this weakness most brigadiers will agree with me, and though I in no way pretend to be an expert of any kind, as a basis of thought and argument I have written the following brief paper. In it I do not intend to go into detail, but, instead, to elaborate a few general rules of guidance which are common to most forms of attack.

First, it must be recognized that cooperation between the arms is largely the result of coordination in the plan; second, that an attack is like any other physical operation. For example, take carpentry. A carpenter has an idea in his head, he has tools to work with and material to work on. In the attack there must be an idea in the mind of the commander, an idea as to what he intends to do; there are various arms—his tools—and the material is represented by the enemy and the ground. There is, however, one great difference; part of the material—the enemy—is alive and working against the plan. His plan is the unknown quantity, like immensely exaggerated stresses and strains in the carpenter's wood.

To coordinate simply means to work, to plan, that is in harmony, for no plan is purposely elaborated to create discord. If fighting were altogether like carpentry a plan could be an exact one, like a blue-print or a drawing; but this in fact is exactly what a plan cannot be, and because the material is alive it has instead to be, not an inexact, but a flexible plan. That is one which can be adjusted to circumstances—and be it remembered that common sense is nothing more than action adapted to circumstances.

The plan must also be a simple one, or as simple as possible, because if simple it can be more readily adjusted. How simple it is depends almost entirely on the object of the attack. A carpenter may be called upon to make a packing-case or a cabinet, the one is a much simpler piece of work than the other; yet the simplest piece of work can be done in a complicated way should the carpenter possess little understanding. Simplicity in war is one of the tests of efficiency because, as in carpentry, it saves time and material.

We thus arrive at three fundamental ideas in planning, namely:

(1) The plan must carry out the object;
(2) It must be as simple as possible;
(3) And as flexible as possible.

If soldiers will remember these three points, a foundation of rock will be laid to their planning.

What now is exactly meant by flexibility? Flexibility is like elastic, it is power to move where you want to without shattering your plan.

If the enemy can stop your plan working, in seven cases out of eight your command will become rigid and fixed. Conversely, to fix the enemy is the first step towards gaining flexibility. Therefore flexibility is gained by so distributing your arms that the chances are that you will fix the enemy before he fixes you.

How is this done?

The first thing to do, which is obvious, is to find the enemy and find out all you can about him, and never rest content that you know enough of his affairs, and never suppose that you know all of them. Never paint a mental picture of what the enemy is going to do, that is imagine something which you do not know for certain, and then act as if it were a true picture. Buying fakes in war, as in the sale room, is not a paying proposition, and when you create your own fakes and "mug" yourself into believing that they are master-pieces, no one will sympathize with your loss.

The second thing to decide is where you intend to attack and with what force. You have got to attack to hold, and you have got to attack to hit. Should you surprise the enemy you will hold him morally in place of physically, and greatly economize your force. But in such cases remember that should your surprise fail, lack of physical clinch may bring the whole of the enemy's forces on top of you; therefore the more risky a surprise is, the stronger must be the reserves wherewith to meet the unexpected, and they must be located in such positions as will enable them at the shortest of notice to clinch.

Thirdly you have got to protect your attacks. All attacks require a defensive, or protective, base to work from. "The whole art of war," says Napoleon, "consists in a well-reasoned and extremely circumspect defensive, followed by rapid and audacious attack." The protective troops are the bow and the offensive the arrow of the attack, for though the protective troops do not propel the offensive ones forward, they do break down the resistance to their advance, which is much the same thing in the end.

Lastly you must be prepared to meet the unexpected, therefore you will require reserves.

There are consequently three categories of troops in every attack:

(1) The attackers divided into those who hold and those who hit;
(2) Troops which protect the attackers;
(3) And reserves.

Your plan of attack is therefore an equation between these three forces, the object and the enemy. Consequently it needs much working out. The usual mistake is to look upon the attackers as a close-up and the reserves as back-ground detail. This is altogether wrong, and may be compared to fishing with a rod the top joint of which is heavier than the butt end. It almost always leads to loss of control. Napoleon once said: "I attack to be attacked." What he meant was that he threw forward a small fraction of his forces for the enemy to bite on, and when his adversary's jaws were fixed he moved up his large reserves—the capital of his tactical bank—and struck his real blow. Here is another saying of his: "Victory is to him who has the last reserve."

Now comes what would appear to be a difficult question to answer. Where is the decisive point of attack? For this point is, so to say, the pivot of the entire operation.

The decisive point is the rear of the enemy, and not his front. It is always the rear, and when it is impossible to attack the enemy's rear, then the point selected must be in relationship to this true goal of the decisive attack. That the rear of an enemy's army is the point to hit at should be obvious. If I can stab a man in the back, that is the safest way to kill him. Should he see me coming, and should I be able to maneuver him into a bog, and so fix himself, I can equally well carry out this operation. This should accentuate the stupendous value of fixing an enemy in war. The vital point in an army is its rear, just as the vitals of a man are in rear of his skin. If I hit a man on the jaw it is to upset the rear of his head; if I fire a bullet at him it is to hit his vitals and not his skin—to scratch an enemy only annoys him.

Frequently an enemy has a very strong jaw and a very tough skin, and as its front more often than not protects its rear, it is impossible to strike directly at the vital point. In such cases a flank should be chosen, that is a spot near to the rear, and when this is impossible and a frontal attack has to be made, then its object is not to destroy the enemy's front, but to penetrate it so that flanks may be created and a way opened to his rear.

We thus obtain three orders of attack, which in importance are:

(1) The rear attack;
(2) The flank attack;
(3) And the frontal attack.

Whichever is decided on, then that part of the enemy's army which it is *not* intended to envelop or penetrate, must be held back and pinned to its ground, so that it cannot move toward the point of attack.

Now we must turn to another equation, that of our force in relationship to the nature of the ground and the enemy's force.

To take the ground first. It can either assist or resist you, also it can assist or resist the enemy. Its assistance and resistance is threefold in nature. It can facilitate or impede.

(1) Observation;
(2) Protection;
(3) And movement.

The advantages of gaining and restricting observation are so obvious that I will examine only the last two characteristics.

Today we have two main categories of attacking troops—armored and unarmored, or petrol-driven and muscle-propelled. The first carries its own protection, the second does not. The second however, as far as infantry are concerned, can move over more difficult ground than the first; but their average speed over normally good going is far less. Surely then it is obvious that:

(1) Tanks should be used over the open spaces;
(2) Infantry should be used on the broken ones;
(3) And tanks should be employed for outflanking operations.

A carpenter uses his tools according to the nature of the work and the material he is working on. He may sometimes use a chisel as a screw driver, but only if he is lacking the latter tool. Each of his tools has a purpose, so also has each weapon. By means of a combination of tools he fashions his packing-case or cabinet; so also in war it is through a proper combination of weapons that battles are *economically* won. Every tool is paramount in its own proper sphere, but no single tool is paramount over all other tools—so also with weapons, there is no God Almighty in the Ordnance Department.

Use weapons according to ground, and you cannot go far wrong.

To turn now to the enemy's force. You may or may not know what the enemy intends to do; nevertheless the ground and his communications will often tell you what he is likely to do. Step into his shoes and look at the ground from his position. As you are going to attack him he is probably on the defensive. Should he not be, then you must force him to defend himself before the decisive blow falls. The weakness in the defense is that the defender cannot be certain where the blow will fall. As long as he can move, he may be able to frustrate the attack; therefore fix him.

This now becomes your first problem. What part of your force will you require for this operation? It does not necessarily follow that you will require an equal or a superior force to the one you intend to fix. The whole art in this operation of war is to fix a large force by means of a small force. You can do one of three things:

(1) You can attack him;
(2) You can threaten to attack him;
(3) You can bluff.

Now as to your second problem, not the attack proper, but the reserves. What reserve force will you require? What are reserves for?

(1) To meet the unexpected;
(2) To support the attack or the defense;
(3) To pursue or cover a retreat.

When you have settled this point you can then turn to your decisive attack, and see what you have left over for it.

It may be said, "This is a very cautious way of proceeding." My answer is that now-a-days there are so many bullets flying about on a battle field that caution has become a high virtue, as high as if not higher than courage itself. Few things are so expensive as a shattered attack. Large numbers in the decisive attack are not usually essential, but the following factors are:

(1) Surprise, which morally multiplies numbers;
(2) Concentration of force, which means superiority of weapon-power at the point of attack;
(3) The fullest possible protective power to safeguard the attack.

Having settled all these points, we must consider two other factors without which coordination can remain but a theory. These are control and supply.

The brain is the chief controlling organ of the body. Note where it is placed. At the forward or top end of the body. In battle the force headquarters represents the brain, and they should be as far forward as it is safe to put them, and all the subsidiary headquarters—artillery, tank, and cavalry—should be close up to them. Remember that the force headquarters controls all the arms and services; remember also that every yard of cable which is unnecessary holds within itself a possible break down. Distance in war is not so much a matter of miles as of communications. What is your power to communicate? That will tell you what your radius of action is. In your plan of attack you must remember this, for loss of control means paralysis.

Lack or loss of supply may mean starvation, and in battle itself supply is largely a matter of getting ammunition up, and its converse—getting the victims of the enemy's ammunition down. It is no good launching an attack which cannot be supplied; and remember also that in this day of aircraft, armored forces, and motor cars, the front of an enemy does not necessarily protect its supply services. To cut these out is like removing the stomach from the body. They are the ultimate goal of the decisive attack or pursuit, for an enemy without bread and beef is soon reduced to a starving mob.

Coordination in the attack, which may be defined as the intimate relationship between functions, whilst cooperation is the intimate relationship between actions, depends on:

(1) Correct distribution;
(2) Rapid control;
(3) And adequate supply.

Distribution is arms fitted to ground in relation to the enemy and the object. Its aim is:

(1) To pin the enemy down—initial attack;
(2) To keep a reserve in hand—for unexpected attacks;
(3) And to carry out the decisive attack—final attack.

Control depends on:

(1) Full information of the enemy;
(2) Full information of our own troops;
(3) And rapid communication of orders.

Supply depends on:

(1) Adequate transportation;
(2) Good and safe roads;
(3) And traffic control.

If these four trinities are remembered, the result will go a long way toward establishing unity of action which is the ultimate goal of coordination in the attack—"United we stand, divided we fall."

The National Guard

Colonel S. C. Vestal, Coast Artillery Corps

TWO of the six primary reasons for ordaining and establishing the Constitution of the United States, as laid down in the preamble, are "to provide for the common defense" and "to preserve domestic tranquility." With these ends in view, Congress was vested with power to raise and support armies, to provide and maintain a navy, and to provide for organizing, arming, and disciplining the militia. There is not the slightest hint in any phase or clause of the Constitution that Congress should rely upon the state governments to provide money for these purposes.

When, after the close of the Revolution, our independence was recognized by Great Britain and the British troops had left our shores, Congress resolved to try the experiment of carrying on government without an army. The Army was reduced to eighty men, who were kept in the service for the purpose of guarding arsenals and public property. Congress soon learned that war lies ever in the background, even in the most peaceful communities. Its dreams of universal peace were interrupted by a formidable outbreak in Massachusetts, known as Shay's Rebellion. Some of the grievances alleged by the rebels were, in the opinion of historians, reasonable; and some were absurd. Whilst rebellion was raising its head in Massachusetts, those in control of Congress were insisting that we should not be prepared for defense, that we should influence others by example rather than by exciting fear, and that we should look to safety not by carrying arms, but by an upright, honorable course. The national government was impotent and could give no aid to the state authorities.

The conduct of the venerable Samuel Adams in the crisis is interesting and instructive. The means employed to excite the people to rebellion in Massachusetts were the same as he himself had used at the beginning of the American Revolution. Those who stood by the state government felt that Adams had much reason to be embarrassed; but there is no evidence that the old revolutionist hesitated for a moment. While the public suffering was undoubted, it was the result of the Revolution, which he himself had done so much to promote. Whatever injustice existed could be remedied by constitutional means, without revolution, a thing which, in his opinion, could not be said of conditions under British rule. As the danger increased, he declared for the sternest measures. The entire state militia was called out, and was well commanded; for the veteran officers of the Revolution stood stoutly by the side of law and order. General Benjamin Lincoln, who had received Cornwallis' sword at Yorktown, made a thirty-mile march in midwinter, stole upon the rebels in a snow storm, scattered them, and ended the new revolution.

Adams opposed the extension of mercy to some of the rebels, who were tried and convicted. He laid it down as a rule that while in monarchies treason or rebellion might admit of being pardoned or lightly punished, on the other hand, men who rebelled against a republic ought to suffer death; which brought forth the remark of a humorist that it makes a great deal of difference as to whose ox is gored.

Samuel Adams did not have the illusion that republics should be able to forego the use of armed force in maintaining their authority. Many years before Shay's Rebellion, in the days when he, as a member of the Massachusetts Assembly, was leading that body toward open rebellion against the authority of Great Britain, the fishermen of Marblehead rose in rebellion against the authority of the Assembly, burnt a smallpox hospital, and defied the local magistrates. This small rebellion collapsed before it became necessary for the Assembly to resort to the use of armed forces but not before Samuel Adams had learned the great secret that revolutionists cannot tolerate other revolutionists, else complete anarchy will ensue. This incident taught him that liberty cannot be kept unless armed force is ready to protect it. It is a curious fact that the Southern Confederacy, which was founded upon the right of revolution, was itself confronted with incipient rebellion against its own authority upon more than one occasion, and that President Davis met the issue squarely as Samuel Adams had met it.

Shay's Rebellion had more influence than any other event in bringing about the convention which met in Philadelphia in 1787 to frame a national constitution. It is well to note that the danger of civil war, rather than foreign war, brought about the meeting of the Constitutional Convention.

The wise men of the time, under the leadership of Washington, determined to found a government clothed with the necessary powers to meet the problems of peace and war. Washington and his friends did not want war, but they were living in a world of realities; and they realized that war may be the only alternative to losing the national life in a chaos of anarchy. They knew that no great nation had ever been able to establish and maintain a permanent form of government without armed power to sustain it.

The purpose for which the convention met may be determined from a statement of Mr. Randolph of Virginia, whose draft of a constitution was accepted by the convention as the basis of its deliberations. Mr. Randolph stated that the character of the new government ought to be such as to furnish security against foreign invasion and against dissensions between members of the Union, or seditions in particular states; it ought to procure to the several states various

blessings which they could not procure for themselves individually in their isolated situations; it should be able to defend itself against encroachment; and the Constitution should be paramount to the state constitutions. A careful consideration of this statement, and of the history of the convention, shows that the great question before the convention was to fix the status of the Army in the State.

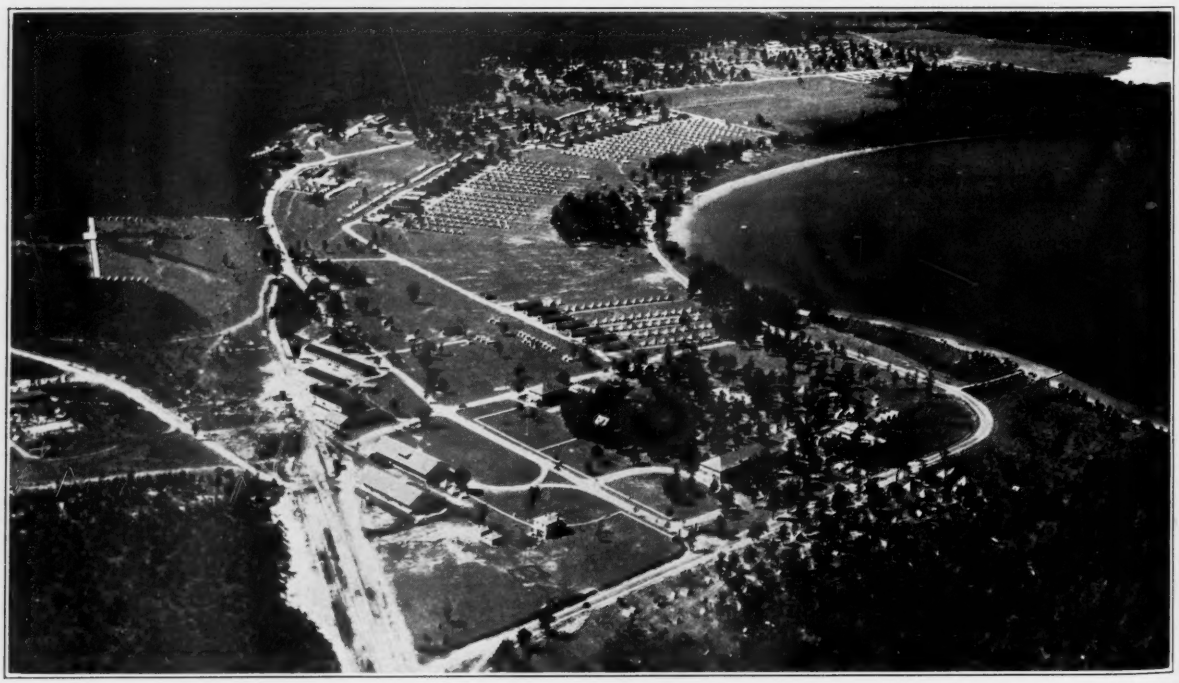
The convention decided to give power into the hands of the majority by putting the sword into the hands of the United States and by defining treason against the United States to consist in levying war against them, or adhering to their enemies, giving them aid or comfort. Thus a minority which appeals to the sword commits treason. According to the republican theory as embodied in the Constitution, right and power, or right and might, are vested in the majority, and are held to be synonymous.

In the Constitutional Convention, Mr. Madison pointed out that the militia was a national concern which should be provided for in the national constitution. He asserted that the states were neglecting their militia; and that the more they should be consolidated into one nation, the less each would rely upon itself for its own safety. He observed that if the states in turn should rely upon the counties for the care of the militia, the militia would be neglected altogether.

The great problem before the framers was to provide an adequate and effective force available for minor emergencies, state and national. It was not desirable that the States should have separate armies; and a provision was inserted in the Constitution that no State should keep troops or ships of war in time of peace without the consent of Congress. How then could the States be given in ordinary times the services of a military force, supported by the general government? The framers sought to reconcile a partial control over the militia by the States in time of comparative safety, with a complete control on the part of the federal government in times of danger.

The last thing that the framers contemplated was that the militia which they provided for in the Constitution should be paid for by the state governments. There was a manifest inconsistency in putting upon the federal government the care of the common defense, and in leaving in the hands of the state governments a considerable part of the nation's military forces. But the Convention went upon the principle that those who pay are masters of those who are paid. So long as the federal government should support the militia, it could control it for all needful purposes.

The Convention set up the frame of a republican form of government for the United States; and made it the duty of the United States to guarantee to every State in the Union a republican form of government and to protect each State, on the application of the legislature or of the executive when the legislature cannot be convened, against domestic violence. Thus in the last resort the United States is the guarantor of domestic peace in each State; but the States themselves are, within certain limits, sovereign nations; and each State has, in its sovereign capacity, the problem of enforcing the will of the majority. Each State therefore needs its own military force. It was the design of the framers of the Constitution to furnish this force to each State at the expense of the United States. At the same time the framers had a deep



Michigan National Guard Field and Training Camp at Grayling, Michigan

fear lest an ambitious president might use his power over the militia for his personal aggrandizement; and it was felt that state control over the training and the appointment of the officers of the militia would avert this danger. One of the enumerated powers of Congress was skillfully framed with these ends in view.

In addition to being authorized to raise and support armies Congress was given power to provide for organizing, arming, and disciplining the militia, and for governing such parts of the militia as may be employed in the service of the United States, reserving to the States respectively, the appointment of the officers, and the authority to train the militia according to the discipline prescribed by Congress. It was plainly the intention of the framers of the Constitution that the United States should pay all the expenses of the militia. There is, of course, nothing in the Constitution or the laws of the United States which prevents any State from expending money upon its own militia.

General Knox, Washington's first Secretary of War, recommended that all ablebodied men between the ages of eighteen and forty-five years should be enrolled in the militia and should receive eighty days training during the first three years of their service, and thereafter four days annually until they should reach the age of forty-five. This was to be a federal force, armed, equipped, and subsisted at the expense of the United States. Its members were to be required to take an oath of allegiance to the United States and to their respective States. General Knox merely proposed to carry out the plain and evident meaning of the Constitution.

In 1792 Congress passed an act establishing a uniform militia throughout the United States. The great fault of this law was that it did not provide for the payment of the militia by the United States. This fault was the father of all the other faults in the bill; because the United States, as long as she left to the States the burden of supporting the militia, could not impose standards of efficiency upon officers and organizations. Strangely enough, this primary fault of the bill has passed almost unnoticed by those who have criticized it; and it is difficult to find constructive criticism recommending that the federal government should pay the militia, as the Constitution plainly contemplates.

By the law of 1792, the United States sought to place upon the States the whole expense of a large military force to provide for the common defense, and to preserve domestic tranquility. In doing so she abdicated that authority over the militia which comes from the relationship of employer and employee. For more than a century the United States contributed little or nothing toward the support of the militia. When one remembers the failure of Congress to follow the intent of the makers of the Constitution by paying the militia, it is difficult to feel much indignation at the failure of the state armies to come to the rescue of the federal government effectually in time of peril. The law, not the Constitution, was at fault.

In his first annual message to Congress, President Jefferson observed that for defense against foreign invasion the number of the regular forces was as nothing. In his opinion the militia should be the great reserve of the country to meet great emergencies. He stressed the necessity at every session of Congress to amend the defects which might show themselves in the militia law. And he added: "Nor should we now or at any time separate until we can say we have done everything for the militia which we could do were an enemy at our door." Unfortunately he made no specific recommendations in regard to the militia. If the Regular Army had cause to complain about the neglect of the national government, the militia had much greater cause. The United States did actually support its Regular Army; but the militia, the reserve force upon which the nation depended in time of great emergency, received no monetary assistance whatsoever from the United States. The idea that the federal government should support its militia had passed completely from the minds of men. More than a century was to elapse before the idea was revived.

Near the close of our Civil War, delegates, comprising the leading men in both political parties in Canada, met and drew up a document which, when passed by the British Parliament, became the Constitution of Canada. The framers of the Canadian Constitution saw in American secession an awful warning against leaving the central governmet too weak. Accordingly, the deviations of the Canadian Constitution from the American Constitution are chiefly in the direction of an increase of federal power. Hamilton's plan for a national militia was adopted in full. The Canadian provinces have no forces, land or naval. The militia is paid for by the central government, which appoints the officers and commands the forces in peace and war.

With a few minor amendments, the American Militia Law of 1792 was the law of the land until the passage of the Dick Bill in 1903. The Dick Bill provided for the issue of arms, ammunition, and other supplies to the militia by the United States government, and for the participation of the militia with the army in joint maneuvers. It provided federal pay and allowances to militia attending maneuvers and taking courses of instruction.

Beginning in 1903, joint camps of instruction and maneuvers, in which the Regular Army and the National Guard took part, where held biennially. Thus, after 1903, the National Guard was subsidized by the federal government in a small way. Within a year after the passage of the Dick Bill, more than a hundred thousand new rifles and carbines were issued to state troops.

Under the Dick Bill, the organized militia was primarily under the control of the state authorities; but it was at the disposal of the United States for limited periods and for certain purposes. By the terms of the bill, the President must call the militia into service through the governors. There was no law to coerce the governors, who could refuse to heed the call, as

happened during the War of 1812 and at the beginning of the Civil War.

The Dick Bill was amended in 1908. More liberal allowances in arms and pay for personnel attending maneuvers were provided for; and power was given to punish by court-martial any officer or enlisted man for failure to answer the call of the President. Thus the national law was made to extend to the individual. The 1908 amendment provided, among other things, that the militia should be called into the service of the United States in advance of any volunteer force raised to meet any emergency that could not be met by the regular forces.

The great purpose of the framers of the Constitution in furnishing each State with a military force at the expense of the United States was not fully carried into effect until the passage of the National Defense Act of 1916, when Congress gave a monetary meaning to the word "provide" by taking the National Guard into federal pay.

In the voluminous literature upon our national defense, I have been unable to find any recommendation that the United States spend money in increasing the size of the militia or National Guard, and establishing national control over it, before February, 1916, when Colonel Roosevelt advanced the idea in an article entitled, "A Sword for Defense." This preceded by only a few months the National Defense Act of that year, when the idea was carried into effect.

The federalized National Guard, created by the Act of 1916 as amended by the Act of 1920, is a supplement to the Regular Army in the first line of defense. The personnel is paid by the United States. The States receive arms and equipment from the federal government, and allotments of money to cover the expense of target practice and other activities. In return, they assume an obligation to conform to the regulations of the War Department for organization, training, and discipline, and to turn over the troops to the nation when, in the judgment of the President, their services are needed. It is contemplated that they shall have enough training to be converted into a cohesive, effective fighting force in time to repel the first attack of an enemy.

The National Defense Act has found means to give the federal government complete authority over National Guard units in case of a great emergency. The National Guard may be "called" into the federal service for a short period of duty within the territorial limits of the United States without losing its state identity. When "drafted" into the federal service it becomes a component part of the Army of the United States.

As we review the history of the militia of the Constitution, we see that there has not been an accretion of power over the militia on the part of the federal government, but rather a return to principles not only laid down in the Constitution but clearly in the minds of the framers themselves as shown by their expressions on the subject. We have a National Guard today such as the framers contemplated when they sat in Carpenters' Hall in Philadelphia. It is truly national. The oaths of officers and men show clearly the precedence of the interest of the Union over all other considerations. Stability of government in each State is assured by the presence of an efficient National Guard, subject to the orders of the governor; and the National Guard is ready at the call of the President to meet national emergencies. Such was the conception of the role of the militia formed by the able and patriotic men, with Washington at their head, who signed the Constitution.

It would be far from correct to infer that the militia during the long interval prior to 1916 did not contain organizations that were efficient. The reverse was true. As an example, the Tennessee militia, led with Napoleonic energy by its commander, Major General Andrew Jackson, was a highly efficient organization; it proved itself so in the campaigns against the Creek Indians in 1813-14 and against the British at New Orleans. Other instances could be given. The circumstances in each case, however, were special and due in no way to the superintending action of the federal government. In spite of the handicap of a bad militia law, the militia, practically unaided by the federal government, formed the thews and sinews of the volunteer army of 1898; and its personnel contributed largely to the volunteer force of 1899-1901.

Our wars prior to the World War were fought practically by the volunteer forces and the Regular Army. The World War found us with the hitherto unused power of the Constitution newly resurrected by the wise law of 1916; and a new type of troops appeared upon the battlefield. National Guard divisions took part in the Marne Defensive and in the St. Mihiel, Meuse-Argonne, and other great offensives. The designations of these divisions have not been lost. They are living things.

We may rest assured that should any war come upon us in the future, divisions of National Guard origin will be found upon all the great battlefields alongside those of the Regular Army and the Organized Reserves. Whenever the Army shall be called into action, National Guard divisions will appear in our first line of defense.

SPORTS

Olympic Prospects at 1st Cavalry Division Horse Show

By Brigadier General Walter C. Short

WITH representatives of the nations's mounted regiments along the southern border participating, the ninth annual horse show of the El Paso-Fort Bliss Horse Show and Polo Association was held in October in the picturesque Howze Stadium at Fort Bliss, Texas. The show was of unusual interest in that it brought together several prospects for the equestrian events of the 1932 Olympic Games and provided General Henry, charged with the supervision of the American equestrian participation in the Games, an opportunity to witness these horses in action.

While retaining the general plan of former years, an attempt was made to meet the requirements of the Olympic competition by including in the program the Equestrian Championship and Prix de Nations events of the last Olympic games.

The Equestrian Championship required three tests: schooling, a demonstration of endurance, and jumping. The schooling consisted of some fifty simple movements requiring about eleven minutes for execution. The endurance phase consisted of ten and one half miles over roads and paths, a two-mile steeple chase and five and one half miles across country, in all eighteen miles of varied going over some twenty-eight moderate but solid obstacles and water jumps, in one hour and thirty-eight minutes. The jumping test, which was designed merely to test the condition and serviceability of the horse on the second day following the severe endurance test, was over a course which contained a bank jump, a water jump, a water in-and-out, seven other obstacles of varied types about three feet ten inches in height. The Equestrian Championship was won by the 10th Cavalry team, made up of Lieutenants Walter Burnside, R. W. Curtis and T. F. Trapolino, on *Tornado, Trinidad* and *Star.*

The Prix de Nations jumping competition was held over a course sufficiently long to permit maintaining a fifteen mile per hour gallop and containing a bank, water jump, water in-and-out and seven other jumps of solid appearance, with a maximum height of four feet seven inches and a maximum width of nine feet over water. The maximum width over the oxers and triple bar jumps was six feet, with an average width of five feet. The contestants competed in teams of three and the failure of any contestant to fulfill the requirements at any point resulted in the elimination of the entire team. The event was won by the 8th Cavalry team composed of Captain Jess G. Boykin, Lieutenant H. A. Luebbermann and Corporal V. M. O'Neil, riding *Woodrow, Charlie* and *Bunny.*

The two Olympic events added much color to the show. Teams competed from the 1st Cavalry, 5th Cavalry, 7th Cavalry, 8th Cavalry, 82nd Field Artillery and Special Troops, 1st Cavalry Division. Many visitors from the border stations attended.

Other events of unusual interest were the Horsemanship Hunt Team won by the 5th Cavalry, Lieutenants Charles G. Meehan, R. A. Drake and E. H. J. Carns on *Overall, Blue Jacket* and *Saplin;* the 2d Cavalry Brigade Trophy won by the Special Troops, Captain H. G. Holt, Lieutenant H. L. Kinnison, and Lieutenant T. S. Riggs on *Peter Pan, Squire* and *Wave;* the Jumper Championship for the Division Commander's Trophy, won by Lieutenant Ballantyne on *Red Wing* with Sergeant Paul D. Evans second on *Peter Pan;* the U. S. Cavalry Association Cup for the highest number of individual points in the entire show, won by Major R. L. Creed, 8th Cavalry; the General Howze Trophy, won by Sergeant Paul D. Evans, Special Troops; the 82nd Field Artillery Trophy, won by Sergeant Walter Murrell, 82nd Field Artillery on *Clysmic;* the 1st Cavalry Brigade Trophy, won by the 7th Cavalry and the Military Trophy, for the highest score in all military events, won by the 8th Cavalry.

The Show Championship was won by the 8th Cavalry. The 7th Cavalry captured both the Senior and Junior 1st Cavalry Division polo tournament championships in the contests held in connection with the horse show.

International Army Polo at Mexico City

RETURNING the visit made by the Mexican Army Team to Marfa last summer, a polo team of players from the Eighth Corps area visited Mexico City in November on the invitation of the Mexican government. The team, accompanied by officers, ladies and civilian friends were extensively entertained during their stay by official and personal friends in the capitol.

Three games were played, resulting in victory for the Mexican Army in each. The American players returned with high praise for their opponents. Not only was the quality of their play superior but the training and selection of their mounts was impressive.

First Game, November 21

U. S. Army: 4		*Mexican Army: 12*
Capt. C. E. Boyle, 12th F. A.	No. 1	Captain Navo
Lt. Harry Cullens, Sp. Trs., 2d Div.	No. 2	Captain Perez
Capt. T. E. Voigt, 7th Cav.	No. 3	Senor Julio Muller
Capt. John Smith, 2d F. A. Brig.	No. 4	General J. J. Quinones

Second Game, November 23

U. S. Army: 2		*Mexican Army: 6*
Lt. P. D. Harkins, 7th Cav.	No. 1	Captain Nava
Lt. L. G. Smith, 1st Cav.	No. 2	Captain Perez
Capt. T. E. Voigt, 7th Cav.	No. 3	Senor Julio Muller
Capt. John Smith, 2d F. A. Brig.	No. 4	General J. J. Quinones

Third Game, November 25

U. S. Army: 8		*Mexican Army: 10*
Lt. P. D. Harkins, 7th Cav.	No. 1	Captain Gracia
Lt. D. T. Craw, Air Corps	No. 2	Captain Nava
Capt. T. E. Voigt, 7th Cav.	No. 3	Captain Quintin Reyes
Capt. John Smith, 2d F. A. Brig.	No. 4	Captain Perez

The Army Horse Show Team in International Shows

AS a climax to its season's activities, the Army Horse Show Team appeared at the three great shows of the fall season which cooperated in securing the presence of foreign teams for international military competition. The Boston show took place October 28,-November 1, the New York National at Madison Square Garden November 5-12 and the Royal Winter Horse Show at Toronto November 19-27. Teams representing the armies of Sweden, Hungary, Germany, the Irish Free State, Canada and the United States took part in the series of shows.

Coming in close succession, the results of the International classes of the three shows give a very fair indication of the comparative performances of the contending teams. The only winners of first places in the twelve International military events were Germany and the United States. Of the first places, Germany took four and the United States eight. The German team reached its peak in the New York show, taking three of the five International events. These included the International Military Trophy (Team event) which might be considered the most important team event of all the shows, and the International Individual Military Championship which likewise was the featured event for individual international competitors.

The riders composing the United States team were: Major H. D. Chamberlin, Captain W. B. Bradford, Captain J. T. Cole, Lieutenants J. W. Wofford, E. J. Thompson and Gordon Rodgers, all Cavalry.

Below are tabulated the winners of first places in the International military classes of the three shows.

Summary of 1st Places in International Horse Show Competitions, Boston, New York and Toronto Shows, Fall of 1930.

Event	Show	Won by	Horse	Rider
$1000 Championship International Military Stake	Boston	U. S.	*Dick Waring*	Maj. Chamberlin
Pairs of International Officer's Jumpers	Boston	U. S.	*Suzanne*	Capt. Bradford
			Muskogee	Capt. J. T. Cole
International Military Trophy (Team Event)	Boston	Germany	*Derby*	Lt. Hasse
			Dedo	Baron von Nagel
			Kampfgesell	Lt. Momm
Jan Ciechanowski Challenge Cup	New York	U. S.	*Joe Aleshire*	Capt. Bradford
$1000 International Military Stake	New York	U. S.	*Tan Bark*	Maj. Chamberlin
Pair of International Officer's Jumpers	New York	Germany	*Derby*	Lt. Hasse
			Kampfgesell	Lt. Momm
International Military Trophy (Team Event)	New York	Germany	*Kampfgesell*	Lt. Momm
			Dedo	Baron von Nagel
			Derby	Lt. Hasse
International Individual Military Championship	New York	Germany	*Dedo*	Baron von Nagel
International Military Handy Hunter	Toronto	U. S.	*Nigra*	Lt. Wofford
International Officers' Team, Three Abreast	Toronto	U. S.	*St. Paul*	Capt. J. T. Cole
			Proctor	Capt. Bradford
			Babe Wartham	Lt. Wofford
International Officers' Team Event	Toronto	U. S.	*Geraldyn*	Lt. Wofford
			Suzanne	Capt. Bradford
			Tan Bark	Maj. Chamberlin
International Military Broad Jump	Toronto	U. S.	*Babe Wartham*	Lt. Wofford

CURRENT TOPICS

The Cavalry Journal Becomes Monthly

THE Executive Committee of the Cavalry Association, at a meeting held December 10, 1930, voted to change the CAVALRY JOURNAL from a quarterly to a monthly publication. In conjunction with this change, it was decided to change the format of the JOURNAL to one more suitable for a monthly magazine and more appealing to the present day advertiser. With this issue, Number 1 of Volume XXXX, publication on the new basis commences.

In its new form the CAVALRY JOURNAL will present almost two and a half times the amount of text previously published per year without *change in the amount of dues or subscription.* The increased space available will allow a wider range of articles to be given the readers. Publication monthly will permit the JOURNAL to be more useful in presenting current information and to keep in more constant touch with the personnel of the Cavalry.

It is believed that the JOURNAL has made a step forward toward greater usefulness. To realize its full possibilities requires the cooperation of the Association members. Contributions to the discussions in its pages, suggestions as to topics for articles, criticisms even, can be made by practically all members. The JOURNAL exists for the benefit of the members of the Association; it will try to give you what you want or need if you will show us where to make improvement and will let us have the advantage of your suggestions.

General Douglas MacArthur

SINCE the last appearance of the JOURNAL, General Douglas MacArthur has taken up the duties of Chief of Staff of the army. The appointment of General MacArthur brings to this high post an officer reared in the army. Born in Little Rock Barracks, the son of Lieutenant General Arthur MacArthur, he first gained distinction by graduating at the head of his class at West Point. Varied and distinguished service prior to the World War included duty with the Engineer Corps, as instructor at the Mounted Service Schools, Fort Riley, with the Vera Cruz expedition of 1914 and two tours on the General Staff. During the World War General MacArthur served as Chief of Staff of the 42nd Division, Brigade Commander, 84th Infantry Brigade and Division Commander, 42nd Division. During this period he was twice wounded in action. Subsequently to the war, he was detailed as Superintendent of the Military Academy, 1919-1922, served in the Philippines to 1925, commanded the Fourth Corps Area, Third Corps Area and Philippine Department. During the World War General MacArthur was awarded the Distinguished Service Cross with Oak Leaf Cluster, the Distinguished Service Medal, and seven Silver Star Citations for personal gallantry in action.

General MacArthur's wide experience and intimate knowledge of the problems of the army and of its personnel assure to us a constructive and progressive period under his leadership. The Cavalry Association extends to him its congratulations on his appointment as Chief of Staff in behalf of the Cavalry officers of the army.

Notice of Annual Meeting

THE annual meeting of the CAVALRY ASSOCIATION will be held at the Army and Navy Club in Washington, D. C., on the evening of January 30, 1931, at eight o'clock. The annual meeting is for the purpose of hearing the annual report of the Secretary-Treasurer, election of officers for the ensuing year, and such other business as may be brought before it. In order to insure a quorum for the transaction of business, all active members unable to be present are requested to fill in the proxy printed below and mail it to the Secretary.

Oliver L. Haines, Major, Cavalry,
Secretary-Treasurer.

PROXY OR NOTIFICATION OF ATTENDANCE

January ....., 1931

I { shall / shall not } be present at the annual meeting of the United States Cavalry Association at the Army and Navy Club, Washington, D. C., January 30, 1931.

I hereby designate the Secretary of the Association or .....
as my proxy, to cast my vote at said meeting, or any adjourned meeting thereof, subject only to the following instructions:

.....

.....

.....

Signature .....

Rank .....

Fill in, tear out, and mail to: U. S. Cavalry Association, 1624 H St., N. W., Washington, D. C.

Professional Notes and Discussion

Method for Representing Fire in Maneuvers

EARLY in the year steps were undertaken at the Cavalry School to improve what may be called the mechanics of maneuver. It was fully realized that the many faults, false actions, and situations which are constantly arising in two-sided combat exercises were almost entirely due to failure properly to indicate fire, and the School accordingly undertook a series of experiments with various devices to overcome this difficulty. Finally there was adopted an ordinary 5-cell, focusing, hand flash light. The use of this light proved successful to an extent that justifies a detailed account of the method of its employment and its effect.

Actual hostile fire is the principal real war factor which is absent in maneuvers. The umpire is provided principally to represent this factor, and upon his judgment of fire effect depends the success or failure of an exercise. Unfortunately, as maneuvers have long been and are now generally conducted, the umpire lacks practically all means to form even a fair judgment of fire effect delivered by ground troops. The means at present afforded him to form his judgment are: what he can see of the dispositions of the opposing force; the sound of blank ammunition fire; information conveyed to him through the umpire net; and suspension of the exercise to talk over matters with other umpires.

Inasmuch as taking advantage of cover is nowadays vital, what the umpire can see of opposing dispositions (unless he moves away from his unit or out of his area, thereby placing himself where he cannot make timely decisions) is for all practical purposes of little value.

The firing of blank ammunition is essential to keep up the interest of the troops, but for umpiring purposes it is generally ineffective or misleading. Blank ammunition does not produce anywhere near the volume of sound of ball ammunition. If the wind is blowing against the fire, it cannot be heard except at the shorter ranges. Blank ammunition is seldom issued in quantities sufficient to maintain throughout the exercise battle fire rates, but even if it were so issued, it would be futile to expect troops to uniformly fit the rate of fire to given situations. Finally, under the best conditions when the blank ammunition firing can be plainly heard and the smoke from the firing observed, it still remains impracticable to satisfactorily or even fairly evaluate the fire; a squad may be creating as much clatter as a troop.

The information gotten through the umpire net (after contact) never has been satisfactory, and little may be expected from this means because of difficulty of prompt transmission, and the fact that the situation, as a rule, has changed by the time the information has been received.

Suspending the exercise, where any considerable number of troops is employed, for the purpose of estimating the situation and making umpire decisions is, of course, as undesirable as it is difficult.

The problem then was to supply a mechanical means of quickly and definitely informing umpires of battle fire effect, when and if laid down. The answer, as above stated, was found in the employment of an ordinary hand flash light and flash lamp. The light of this lamp is plainly visible up to 2500 yards (probably farther) in the brightest sunlight and in any direction relative to the sun. On dull days it is of course even more effective, and has also rather a remarkable mist-piercing quality.

Operation of Flash Light. In using the light the beam was focused to its smallest diameter, and this diameter even at extreme ranges is relatively small, so small in fact that the man using it must aim it at the objective. The beam covers an angle of about 200 mils, that is to say, that when directed on an observer 1000 yards distant the light could not be seen from a point 100 yards to the right or left of such observer. It is obvious from this that the great value of the light lay in its indication of the direction from which fire was coming, and, by the assignment of fire value to each light, in its instant representation of the volume of fire as well. The lights were issued to and indicated the fire of units as follows:

Rifle platoon or major portion thereof—1 flash light only;

Machine rifle platoon or major portion thereof in action as to separate unit—1 flash light accompanied by the waving of a white flag;

Machine gun section—1 flash light accompanied by the waving of a red flag.

The fire of smaller units was represented by the use of blank ammunition. It should be remembered that the lights did not abolish the use of blank ammunition. It was used by all units as heretofore.

The special effects of the employment of these lights were noteworthy. The unit commander knew that the troops against whom he was firing must immediately know and feel the effect of his fire, and that its value was definitely apparent to the umpire with the opposing side. The umpire with the troops receiving the fire and the commander of these troops were instantly informed when they saw the light or lights that they, and they alone, were under that particular fire, and they knew as well the kind and volume of fire. Adding to this knowledge an estimate of the range gave them

data upon which very closely they could evaluate the fire effect and act accordingly.

The general effect of the employment of the lights was: first, to slow down an exercise involving fighting to a reasonable approximation of the rate of progression of a real battle; and, second, almost entirely to avoid unnatural and absurd actions and situations.

Representation of Artillery Fire. Artillery fire was represented by using an observation plane with streamers attached which flew from the artillery firing position over the troops which were being fired on. As it passed over the position under fire it dropped a message to the troops indicating the amount of artillery fire directed on them. This message was transmitted at once through the unit commander to the umpire for appropriate action.

Such success as attended the battle exercises during the last school year was due more to these simple systems of representing rifle, machine gun, and artillery fire than to anything else.

Semi-Automatic Shoulder Rifles

AN extensive test of semi-automatic shoulder rifles of reduced caliber is in progress before a board of officers appointed by the War Department. Two rifles of domestic manufacture are outstanding in performance.

Experimentation to develop a caliber .30 semi-automatic rifle within the weight limit of the present service rifle is in progress. There is promise of success. Caliber .30 is almost essential, due to interchangeability of standard ammunition and war reserves of arms and ammunition. A change of caliber will be made only as a necessity.

Rating Sheet for Polo Players

DURING the past polo season, Colonel George Williams as polo representative at the Cavalry School felt the need for an accurate record of the work of the various players in order fairly to rate them. To fill this need he developed the simple form shown below as the basis of the system.

By using this system for an appreciable length of time a polo representative is able to visualize the varying characteristics of the players: to spot the brilliant, selfish player who habitually hits to himself; to locate and correct, or remove, the man who costs more in fouls than he is worth in goals; and finally, to note and advance the player often unremarked who plays for his team rather than for the grandstand.

Team, Position and Name of Player	*Goals*		
	Periods		Total
	1	2	
No. 1			
No. 2			
No. 3			
Back			
Sub.			
Sub.			
Goals by Pony			
Goals by handicap			
TOTAL GOALS			
No. 1			
No. 2			
No. 3			
Back			
Sub.			
Sub.			
Goals by Pony			
Goals by handicap			
TOTAL GOALS			

Symbols for Scoring: (By Placing the Appropriate Symbols in the Proper Column Opposite the Player Indicated, the Record is Complete.)

1 = Goal.
x = Assist in making goal by placing ball for team-mate.
0 = Saving goal by hitting ball, crooking enemy or riding him out.
f = Foul.
s = Safety.
S1 = Goal from safety.
S2 = Goal from foul.

Organization Activities

1st Squadron, 3d Cavalry, Ft. Ethan Allen, Vt.

During the latter part of August and first of September the First Squadron, Third Cavalry made its annual practice march. The itinerary this year was through the most scenic part of New England and covered territory where regular Army troops had never been seen before.

The march terminated at Fort Ethan Allen Artillery Range where all regular army troops in the Corps Area were concentrated for maneuvers.

Upon return to the post, mounted pistol and saber courses were completed for record for the first time in several years, and Troop B participated in the Goodrich Trophy Training Test.

3d Cavalry (less 1st Squadron), Fort Myer, Va.

The readiness of the command to take the field was tested December 4th, which was designated as M-Day. Complete equipment was taken and all reports prepared for departure. Both in time required to move and in the inspections made, the results were most satisfactory.

The garrison had the pleasure of a visit by the Hungarian and German Riding Teams.

At present the regiment is engaged in the conduct of schools and in practice for the winter exhibition rides, scheduled to commence January 16th.

4th Cavalry, Ft. Meade, S. D.

Several projects which were sadly needed in the post have recently been completed, the major one being the installation of the new telephone system.

Other improvements include the hard surfacing of about one and one-third miles of road in the post proper. The stretch of road extending completely around the main parade ground has been graded, gravelled and given an application of thick asphalt. The construction of the new $18,000 War Department Theatre is nearing completion and will be equipped with the latest "talkie" apparatus. This project, when completed, will be a treat for members of the garrison during the long winter evenings.

5th Cavalry, Fort Clark, Texas

A platoon of Troop E, 5th Cavalry commanded by 1st Lt. C. A. Thorp was winner of the Leadership Test for Small Cavalry Units completed on November 25th. Platoons from the 1st, 5th and 12th Cavalry competed in the test which was held this year in the vicinity of Fort Clark.

The platoon from Troop E, 5th Cavalry made the exceptionally high score of 87.1500%.

The results were particularly gratifying in view of the unusual amount of rainy weather during the period devoted to training of this test.

6th Cavalry, Fort Oglethorpe, Ga.

The annual practice march of the regiment was made during the period October 29-November 17, 1930, to Nashville, Tennessee, and return. Total distance marched 314 miles. It is interesting to note that the 6th Cavalry has marched approximately 1500 miles through the states of Georgia, South Carolina and Tennessee during the past 15 months.

Troop B, 6th Cavalry, Captain G. X. Cheeves, commanding, completed the Goodrich Trophy Training Test on December 10, 1930.

7th Cavalry, Fort Bliss, Texas

In late October the regiment took to the field for a five day maneuver with the 8th Cavalry. The last day of maneuvers was a brigade problem under command of Brigadier General W. C. Short.

Troop F, under command of Captain Apgar, represented the regiment in the Goodrich Trophy Test.

Since winning both senior and junior polo tournaments, the ponies and players have been given a rest as far as polo in the regiment has been concerned.

8th Cavalry, Fort Bliss, Texas

As one of the measures to provide the cavalry quota of enlisted men for the fourth Air Corps increment, War Department orders made inactive the Eighth Cavalry band, effective November 15th, after sixty-four years active service.

The regiment is proud of its record of winnings in the recent First Cavalry Division Horse Show. The Eighth Cavalry team, led by Captain Jess G. Boykin, was high scorer of the show.

During the past quarter the Eighth Cavalry has taken the field twice, once for regimental maneuvers and once for the brigade maneuvers.

10th Cavalry, Fort Huachuca, Arizona

At the Cavalry Division Horse Show, two 10th Cavalry youngsters walked away with the two big events of the show. 2nd Lieut. Thomas F. Trapolino, on *Buddy*, won the Prix de Nation and 2nd Lieut. Raymond W. Curtis, on *Trinidad*, won the Equestrian Championship for the second time. The 10th Cavalry won several other places among which were the teams winning first in the Equestrian Championship and third in the Prix de Nation. Much credit for the success of the Buffaloes goes to 1st Lieut. Walter Burnside for his untiring efforts as coach and captain of the team.

COMPANIONSHIP

To THE cosy intimacy of the firelight hour, Camel adds a perfect companionship. It is the smoke one might dream of, fragrant and mellow, mild and altogether delightful.

The mildness of Camel is a natural mildness, from the blending of choicest sun-ripened tobaccos—never over-treated, never flat or insipid.

CAMELS

MILD—Not flat

11th Cavalry, Presidio of Monterey, Calif.

On October 31, 1930 Colonel Roger S. Fitch, 11th Cavalry, bid farewell to the regiment, the Presidio of Monterey and his active career in the United States Army. A review was held in his honor the last morning of Colonel Fitch's active command, every unit of the garrison being present at the march past in full strength down to the last and newest recruit.

There has been no polo activity since the team returned in September from their successful Santa Barbara trip, but it is believed that around Christmas week sufficient civilian talent to afford competition will arrive and that playing will be resumed on the Del Monte Fields.

12th Cavalry (less 2nd Squadron) Fort Brown, Texas

An innovation in training in ceremonies has recently been inaugurated by the Post Commander whereby twice each month an organization puts on an exhibition drill. The drills are alternated with the formal guard mounts ordinarily held on Friday of each week. Troops are left free to work up such features as will have both training value and at the same time be entertaining to the public.

The Annual Mid-Winter Polo Tournament got under way at Fort Brown on December 7th, when the Harlingen Team met the Reynosa (Mexican) Team. Both of these clubs are newly organized and considering their short experience in polo put up excellent performances. Reynosa came off victorious in the initial game with a score of 4 to 2.

14th Cavalry (less 1st Squadron), Fort Des Moines, Ia.

The 14th Cavalry (less 1st Squadron) returned to Fort Des Moines on the tail of an artic gale at 10:30 A.M., September 26th, completing a nineteen day march and maneuver to Clear Lake, Iowa, and return.

The regiment covered 263 miles in ten marches and each day's march was made under war conditions—i. e. a situation continuing from day to day was developed to test the troops in patrolling, scouting, attack, defense, pursuit, retreat, change of direction of march, covering forces forward displacements, communications, all phases of machine gun uses, etc.

At all times part of Headquarters Troop acted as the enemy, outlining enemy positions with flags and armed men using blank ammunition. All troops used blank ammunition at all times, and in this way realism was obtained and the interest of the personnel was kept up to a high degree.

1st Squadron, 14th Cavalry, Fort Sheridan, Ill.

Great interest was shown in the first Post Polo Tournament ever held at Fort Sheridan. Large crowds witnessed the Sunday games despite the, at times, cool weather. The week day games were also surprisingly well attended.

Five locally handicapped teams competed in a round robin tournament lasting until November 9th. This is the latest that outdoor polo has ever been played in this section of the country. No difficulties were encountered and the tournament was a great success.

The quality of remounts reaching this Squadron from the remount depots is steadily improving. Captain H. L. Branson, 14th Cavalry, has just completed training and conditioning thirty remounts, practically all of which turned out to be excellent polo prospects and are now being played regularly.

103d Cavalry, Pennsylvania N. G.

Within a few weeks two of the most important training conferences of recent years were held.

At Philadelphia, the Officers of the Philadelphia Unit gathered to discuss the "Lund System" of Training as used since the encampment. At this conference Colonel John W. Converse delivered a remarkable lecture entitled "Teaching and Training" explaining in detail the above system and its practical application.

Similarly at Lock Haven on November 30th, Major Wolfe presided over the Officers of the Second and Third Squadrons; both meetings were fraught with practical information and suggestions contributed by the keen observations of the officers who are responsible for the application of the system.

104th Cavalry, Pennsylvania N. G.

Two Troops of the Regiment, Troop E of Chambersburg, and Troop L of Punxsutawney, will shortly be housed in new administration buildings and stables which are in course of construction under the direction of the State Armory Board. Approximately $100,000.00 is being expended for the two units. With a few exceptions, the Regiment is now adequately quartered in nine cities and towns in which the scattered units of the Regiment are located.

The training of specialists is receiving particular attention in the training schedules of all organizations during the period November 1 to April 30. Master schedules in the form of questions and answers were prepared by the Regimental Staff and issued to all organizations. Every specialist in the Regiment is covered in these lessons.

107th Cavalry, Ohio N. G.

The 84th Brigade and Regimental Headquarters, both being located at Cleveland, the officers of the two staffs are holding their weekly drill meetings together, under the able instruction of Major John K. Brown, Cav. U. S. A. Senior Instructor on duty with the 107th Cavalry.

Negotiations are under way by the State of Ohio to provide an indoor mounted drill hall for units of the regiment located at Columbus. A new civilian riding hall has come into being at that city, and it is expected that the Cavalry units will be able to use its facilities for mounted drill during the inclement weather. This will materially assist these units, which have been handicapped for the lack of a mounted armory.

BOOK REVIEWS

COLOSSAL BLUNDERS OF THE WAR, by William Seaver Woods. The MacMillan Co., 1930. 269 pages. $2.50.

The fact that Mr. Woods is an experienced newspaper man might easily be gleaned from the style of this book, a style which wastes no time in searching for rhetorical effects but drives straight to the point. As editor of the *Literary Digest*, Mr. Woods has had ample opportunity to imbibe the newspaper story of the war. In addition, he has consulted original and other reliable sources and, by this procedure, has fortified his position until his statements are well-nigh unassailable.

The book's title sufficiently explains its contents; it is a recital of some of the larger, more important blunders which punctuated the course of the World War. In this recital the author is entirely impartial. Indeed, his method seems to savor of Donnybrook technique—"If you see a head, hit it!" Friend and foe alike are grist to his mill; he even mentions that unconventional march of the American 1st Division.

The author has marshalled his blunders by countries: Part I refers to the contributions of the United States; Part II refers to Germany; Part III to Great Britain and France; Part IV to Russia. Thanks to the newspaper man's nose for news, Mr. Woods has made an excellent selection of the more sensational breaks of the war and has written them into a very readable book. He not only shows how these mistakes were made but also exposes their results.

The great lesson which Mr. Woods draws from all these errors is that they wasted lives. Each blunder of the higher-ups cost human lives which should not have been lost. When he tells of the half-trained officer who tried to march his company in parade formation across a dangerous bridge he addresses every bereaved parent in the land and says, "*Your* boy might not have been killed in the war if *you* had made *your* Congressman give him proper leadership."

That is the note, constantly repeated, which dominates the entire book—that blunders in war are paid for in precious human lives. " * * the casualties of the men in France were double what they should have been if the officers and men had the proper training." The author comes to the logical conclusion that the only remedy, as far as the United States is concerned, is adherence to a suitable program of national defense.

It is too bad that Mr. Woods' book cannot be put into the hands of every person who lost a loved one during the war. It does no good for us, of the military, to preach the same ideas that Mr. Woods does (as we have been doing ever since there *was* an Army) for we are immediately suspected of ulterior motives. But if more good writers would unite to bring home to

every American voter the fact that unpreparedness may empty a chair in his own particular home, then America would have a program of national defense suited to her vital needs.

= = = =

GEORGE WASHINGTON, COMMANDER IN CHIEF, by Thomas G. Frothingham, Captain, U. S. R. Cloth, 405 & XII pages, with illustrations, 1930. Houghton Mifflin Company, Boston and New York. $5.00.

The preparations for the bicentennial celebration of Washington's birth have awakened a new interest in the great life and accomplishments of our first commander in chief. It is, therefore, opportune and fitting that Captain Frothingham, a student of military affairs, has prepared this book on the military record of General Washington. Among the many biographies of our revolutionary commander in chief this work is unique, in that it is written from the military point of view, with the actual military operations as the guiding theme. The author conscientiously presents the military events in the career of Washington and thus impressively reveals to the reader a vivid and strong picture of the admirable leader and his character. The book has the Macaulay method of general annotation which readily permits the researcher to locate cited items in any of the several existing compilations of Washington's letters and papers. The book is a valuable addition to the already extensive Washington shelf and will serve to counteract the distorted and sometimes erroneous impressions made by some Washington biographers who have presented too many petty arguments and too much insignificant personal color. The reading public will enjoy the book, and military readers will find it valuable, instructive, and entertaining. Many facts, little known, even to the military reader, will be read with interest; for example, "Washington's Six Rules of War," some, if not all of which appear later in more or less the same form, in Napoleon's Maxims. The author has performed a patriotic service in his worthy effort to give an accurate, pleasing measure of Washington's truly great military genius. The reader will finish the book with a deeper appreciation of and a greater reverence for Washington.

= = = =

BEDFORD FORREST, by Captain Eric William Sheppard, Royal Tank Corps. Lincoln MacVeagh, The Dial Press, New York. 320 parges. Price $5.00.

Bedford Forrest, dashing cavalry leader of the Confederacy, is one of the outstanding figures of the Civil War. Although largely neglected by our historians, his personality, life and actions, often thrilling, always picturesque, mark him a hero of almost epic proportions. It remained for an Englishman to tell the story of this remarkable man.

Following the trend of modern biographers, Captain Sheppard's skillful pen has produced an interesting admixture of romance, historical novel, and biography. He introduces a number of fictitious characters, and

creates a number of imaginary incidents to provide the necessary atmosphere for his drama. While this adds to the human interest, the wisdom of resorting to such devices is at least questionable in a serious biography. The fact that he carefully lists his fictitious characters for the information of the reader hardly exculpates him.

The author, with consummate skill, has made all his characters, real and imaginary alike, living, breathing beings of flesh and blood. The scenes he depicts pulsate with life and action. Precisely therein lies the risk that, in spite of the author's prefatory admonition, the reader will be hard put, for example, to differentiate between the fictitious Charity Dunn and the flesh-and-blood Emma Sanson. Similarly, the reader will find it difficult to determine where history ends and fiction begins. To that extent the author defeats his purpose of writing history, notwithstanding the historic authenticity of the main events of his narrative.

Captain Sheppard has written a masterful piece of work well worth the reading. He has contributed generously to a better understanding and a greater appreciation of that brilliant American soldier, Nathan Bedford Forrest.

= = = =

THE LIVES OF A BENGAL LANCER, by Major Francis Yeats-Brown, The Viking Press, New York, 1930. 299 pages. $2.75.

A truly remarkable book, well-written, interesting, and informative. The story opens with nineteen-year-old Yates-Brown joining a native cavalry regiment, the 17th Bengal Lancers, years before the World War, and carries the reader through a polo-playing, pig-sticking, existence up to his return to England just before the World War. He becomes air observer in Mesopotamia and spends two terrible years as prisoner of war in Turkey. He returns to India and, after leaving the army, seriously studies Yoga. He tells much of Vedic philosophy and discusses in the appendix the eleventh chapter of St. John from the viewpoint of *kali-mudra* (death gesture) a self induced trance.

The book is an absorbingly interesting one for the thoughtful reader.

= = = =

THE OLD SERGEANT'S CONFERENCES, by Colonel William H. Waldron, U. S. Army. The Infantry Journal, Inc. Washington, 1930. 152 pages, $1.50.

In this book Colonel Waldron has given a unique treatment of the subjects that he discusses. The Old Sergeant and his wards assemble on the barrack steps after supper. Here the young soldiers bring their problems for solution. The Old Sergeant discusses them freely and frankly out of the wealth of his personal experience. In simple language he points out the pitfalls that lie in the way of the soldier, the Service, and how he may avoid them. Many a soldier serves years in the Army before he acquires the information contained in these conferences, and some never get it.

The chapters deal with the following subjects:

Success in the Army. The path that leads to success, and the rewards that await those who reach the end.

Bad Company. "That talk's made a Christian out of me," remarked Private Sob Sobinsky.

Military Courtesy. It is essentially the same as the code in civil life.

Military Discipline. Which explains this misunderstood and misinterpreted phase of military life so that the soldier can understand it and appreciate the need for it.

A. W. O. L.—Desertion. The value of an honorable —excellent discharge.

And a chapter of miscellaneous information, including customs of the Service and the reasons for the manner of doing certain things in the army.

Here is a book that every soldier in the Army should have as his own, to read and study with an attentive mind. If he does he will learn and appreciate military life; he will find help in avoiding the danger places. Company commanders will find that this book, put into the hands of their men, will help to solve many problems.

= = = =

THE REMINISCENCES OF A MARINE, by Major General John A. Lejeune, U. S. Marine Corps. Illustrated with Official and Personal Photographs. 488 pp. Dorrance & Co., Philadelphia. $4.00.

Written in clear, simple English, this is an interesting account of a particularly colorful and comprehensive career in the Naval Service of the United States.

The brief account of the writer's early youth in Louisiana in the period immediately following the Civil War is an arresting story of the tragic era of the Southland that is rapidly fading from our national consciousness. The many episodes in the active life of a Marine, serving under the American flag in Samoa, Cuba, Porto-Rico, Panama, the Philippine Islands, Mexico, France, Germany, Haiti, Santo Domingo, and Nicaragua, are told in an unassuming manner, but never fail to hold the interest of the reader. Particularly dramatic is the account of the wreck of the U. S. S. Vandalia at Apia, in which the author almost lost his life.

The frequent personal allusions to his numerous relatives, which are scattered throughout the book, while revealing his strong, clannish trend and a deep sense of kinship, detract somewhat from its literary merit.

Although the book was written for the general public, real gems for the military student will be found in the chapters dealing with the Battle of Saint Mihiel, the Battle of Blanc Mont Ridge, the 2nd Division in the Meuse Argonne, the March to Germany, and the occupation of the Rhineland. Not only are they historically accurate but they cover these actions from the viewpoint of a division commander who presents some of the actual problems confronting a commander in battle, and indicate his successful solution of these problems.

Any military student of American participation in the World War will suffer a real loss if he fails to read the four chapters covering the period in General Lejeune's career during which he commanded the 2nd Division in action.

The United States Cavalry Association

Organized November 9, 1885

DESIGN

1. The aim and purpose of the Association shall be to disseminate knowledge of the military art and science, to promote the professional improvement of its members, and to preserve and foster the spirit, the traditions, and the solidarity of the Cavalry of the Army of the United States.—*Article III of the Constitution.*

OFFICERS

President

MAJOR GENERAL GUY V. HENRY

Vice-President

Colonel HARRY N. COOTES, 3d Cavalry.

Secretary and Treasurer

MAJOR O. L. HAINES, Cavalry

EXECUTIVE COUNCIL

Colonel LEON B. KROMER, Cavalry.
Colonel LLEWELLYN W. OLIVER, Cavalry.
Colonel W. I. FORBES, 305th Cavalry.
Colonel HOBART B. BROWN, 302d Cavalry.
Lt. Col. H. T. BULL, Cavalry.
Lt. Col. JOHN K. HERR, Cavalry.
Lt. Col. J. W. CONVERSE, 103d Cavalry.
Lt. Col. A. W. HOLDERNESS, Cavalry.
Major A. D. SURLES, 3d Cavalry.

MEMBERSHIP

Membership shall be of three classes, which, together with the conditions of eligibility therefor, are as follows:

(1) Active, for which all general officers of the Army of the United States and all commissioned officers of the Cavalry of the Army of the United States shall be eligible.

(2) Associate, for which all present and former commissioned, warrant, and non-commissioned officers of honorable record of the military or naval services of the United States not included in class I shall be eligible.

(3) Honorary.

Application for membership, showing present or former military status, should be addressed to the Secretary, U. S. Cavalry Association, 1624 H Street, N. W., Washington, D. C., and be accompanied by remittance of dues for one year.

DUES AND SUBSCRIPTION TO THE CAVALRY JOURNAL

There is no initiation fee. Annual dues, payable in advance, $2.50, which includes subscription to the Cavalry Journal, 60% thereof being so designated.

Any person or organization not eligible for membership may subscribe for the JOURNAL at the regular subscription rates of $2.50 per year. Canadian and foreign postage, 25 cents additional.

Members and subscribers are requested to give prompt notice in advance of change of address. Changes in address are made only on notification.